DEXXUM T

User Manual

better products for better life
OsteoSys

DEXXUM T

User Manual

User Manual
Safety Precautions

1. General Use 4

2. Safety in Use and Measures 12

3. Washing and Maintenance 17

General Use

1. Notation Method of Manual 5

1) Notation Method 5
2) Label 6
3) Mark 7

2. Product Instructions 8

3. Software 9

4. Personal Data Protection 9

5. Installation and Starting of Equipment 10

6. Equipment Maintenance 11

1. Notation Method of Manual.

1) Notation

User manual and installation manual are described according to the following display method and consist of following notation methods.

- Methods of sequence description, symbolic notation and icon notation

Description contents with sequences are described in alphabetical order.

a. Contents of sequence No.1
b. Contents of sequence No.2
c. Contents of sequence No.3

Examples on the descriptions in manual are described in the box marked example.

Example)

a. Place the patient on the bed of measurement equipment. b. Check if measurement points are within measurement range and place them in the exact position. c. Select yes/no when display window of user program asks, "Will you move to standard position?"

Additional descriptions are described as' - ' and they show the information to supplement brief information.

Information on important things or marks to be paid attention to among the manual descriptions

: Contents to be noted concerning equipment use

: Contents to be known thoroughly concerning equipment use

: Pages to be referred to

2) Label

Label 1.

" CAUTION! " warning label against laser radiation

- Staring directly at the outlet of laser radiation without protection equipment when the laser is turned on can cause serious damage to eyeballs.

Label 2.

" CAUTION " warning label against High voltage

- Users can be exposed to risks due to important equipments with high voltage.

Label 3.

" WARNING " warning label against equipment movements

When fingers are pinched between moving measurement arm of equipment and patient table, accidents likely to occur.

3) Marks

: X-ray is turned on

It is the mark indicating X-ray is being radiated at present. It appears on monitor as well as controller of equipment during measurement or daily test.

: X-ray is turned off

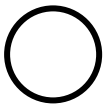
It is the mark indicating X-ray is not being radiated. It appears on monitor in case of stand by mode, standing ready to be measured, or measurement completion.

: laser pointer

- It is a mark indicating the dangers associated with laser pointer.

: Power is turned on

- It indicates power is turned on. (power-on)



: Power is turned off

- It indicates power is turned off. (power-off)

: Start mark

- It indicates X-ray generation is in the preparation stage.

: Communication state

- It indicates the communication state of equipment.

: Caution

- It indicates when caution is needed for safety or the case when instructions are needed.
-

2. Product Instructions

The users of this equipment need knowledge of equipment and train for equipment use.
They shall read and understand the operation manual correctly and then operate the equipment according to the sequences.

Especially attention to the "caution" mark as it appears when there are directions or warnings in each partial item.

Installers and users of equipment shall take the responsibility for equipment operation according to the related laws and regulations of regions where the equipment is installed and operated.

Users shall take adequate education on adequate use of equipment and know well the use procedures by repetitive learning of manual, periodically or non periodically.

It is recommended that users should simulate to provide against emergencies, while training the equipment use repeatedly.

3. Software

User programs and application programs for equipment use are protected by copyright.

Only authorized users of OsteoSys shall have rights to use software of this company.

Warning

We shall not take the responsibility of death accidents by equipment or equipment damages when persons who are not authorized to use the software/programs use software, or the damages occur by fabricating, modifying, illegally altering software/programs without our company's permission.

4. Personal Data Protection

Personal information or figures about patients shall be protected under related laws.

5. Installation and Starting of Equipment

Equipment installation and position change of installed equipment shall be based on related laws.

Please note that manufacturer, seller, installer, importer and OsteoSys shall not take any responsibility for malfunction of equipment or measurement values in the following cases.

* If the equipment was not used according to the directions of manual.
* If the person who has not been authorized by our company performed the software install, upgrade, modification or sales after service.
* If the service parts affecting equipment safety are not formal ones of our company.
* If the environment of equipment installation and starting is out of standard.

6. Equipment Maintenance

It is recommended to periodically perform examinations and maintenances of equipment, and check up safety devices and equipment, for the safety of equipment users, patients and the third.

The details about examination and maintenance of equipment are indicated in "contents" of equipment operating procedure in manual, and it is recommended to periodically perform procedures on examination and maintenance.

When you need services, please contact our AS team or local agencies.

Contact number of Osteosys A/S dept.: +82-2-2025-1663(4) / 1650

Periodical examination and required specific examination can be added according to the related laws.

Safety in Use and Measures

1. Equipment Operation 13

2. Use of Emergency Switch 13

3. Interruption of Operations of Equipment in Case of Emergency Evacuation 15

4. Interruption of Operations of Equipment in Case of Fire 15

5. Safety instructions on Measurement Assistant 16

1. Equipment Operation

DEXXUM T is equipment that generates X-ray and measures the spine and femur of patients using the movements by motor drive. Subjects and patients need to be careful of motor movements for safety reasons.

Please master the equipment operating method.

If users lean against the equipment arm or touch it during the stand-by phase or measuring, safety problems can occur in users or subjects.

Do not let subjects sit down or stand up while measuring.

Do not approach the moving arm when turning on the equipment in "OFF" state. If power is turned "ON", the equipment goes to the initial position automatically.

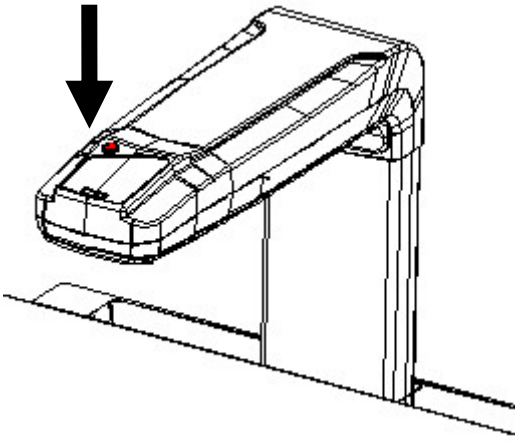
When abnormal operating or noise occurs during operation, press the emergency switch and contact related agencies or our company's AS team.

2. Use of Emergency Switch

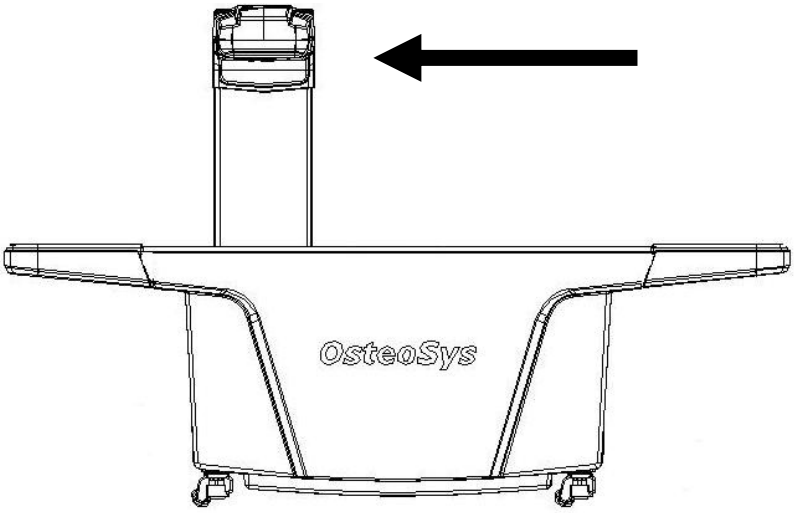
When using emergency switch due to unexpected situation, follow the procedures below.

a. Press the emergency switch in case of emergency or abnormal operating.
b. Push the arm in one direction with hands so that a subject may come down.
c. Have the subject come down from the equipment and then change the main switch of equipment to off-state.
d. Return to the original state by pressing emergency switch once more.
e. Take the necessary measures and turn on the main switch.
f. Check if equipment operates.

1. Press it



2. Move it with hands so that a patient can come down.



3. Interruption of Operations of Equipment in Case of Emergency Evacuation

In case of fire incidences of buildings or evacuations due to natural calamities, follow the procedures below.

a. Press the emergency switch and evacuate the subject by pushing arm in one direction.
b. Separate the main switch or power and then promptly lower and evacuate the subject.

4. Interruption of Operations of Equipment in Case of Fire

a. In case of fire, flip the main switch down and separate the power connected to equipment.
b. Lower the subject and promptly evacuate.

If the equipment is smoked or burned, gas can be generated.
Osteosys recommends that you should have measures for fires.

5. Safety instructions on Measurement Assistant

Measurement assistant made or approved by Osteosys shall be used for safety use of equipment.

Please note that if any errors of measurement value occur by using unapproved assistant, users shall take the whole responsibility for that.

,

Washing and Maintenance

1. Washing of Equipment 18

2. Washing of Monitors 19

3. Washing of Keyboards 19

1. Washing of Equipment

Warning

Turn off the main switch before washing.

Separate the AC power cable from power source.

Notice

Do not eject the spray type cleansing solution or cleansing solution in a spray container onto equipment.

If spray type cleansing solution or cleansing solution is ejected to equipment, it has a very high possibility to cause damage to electronic machines within equipment.

Be sure that cleansing solution might not be flowed into the equipment inside.

- Contact areas between patients and equipment shall be kept clean.

- When cleaning cover of equipment, wipe it using soft cloth dipped in cleansing solution mixed with water or neutral detergents.
  Sprinkling water on equipment itself or soaking the equipment in water can cause damage it.

- Do not use solvent or paint remover.

2. Washing of Monitors

Notice

When cleaning monitors, do not use acid or alkaline detergents. It can cause damage on monitor surface.

- When cleaning monitors, brush the dust off with a soft brush or wipe it off with a soft cloth dipped in a neutral detergent when need wiping.

  It is recommended to wipe the surface of monitors with a soft cloth or use a cleaner for monitor screens.

3. Washing of Keyboards

- When cleaning keyboards, brush the dust off with a soft brush or wipe them off with a soft cloth dipped in a neutral detergent when need wiping.

DEXXUM T User Manual

1. Product Introduction of DEXXUM T 21
2. Basic Installation Method of DEXXUM T 26
3. Instructions of DEXXUM T Program 24
4. Documents Related to DEXXUM T 78

DEXXUM T Product Introduction

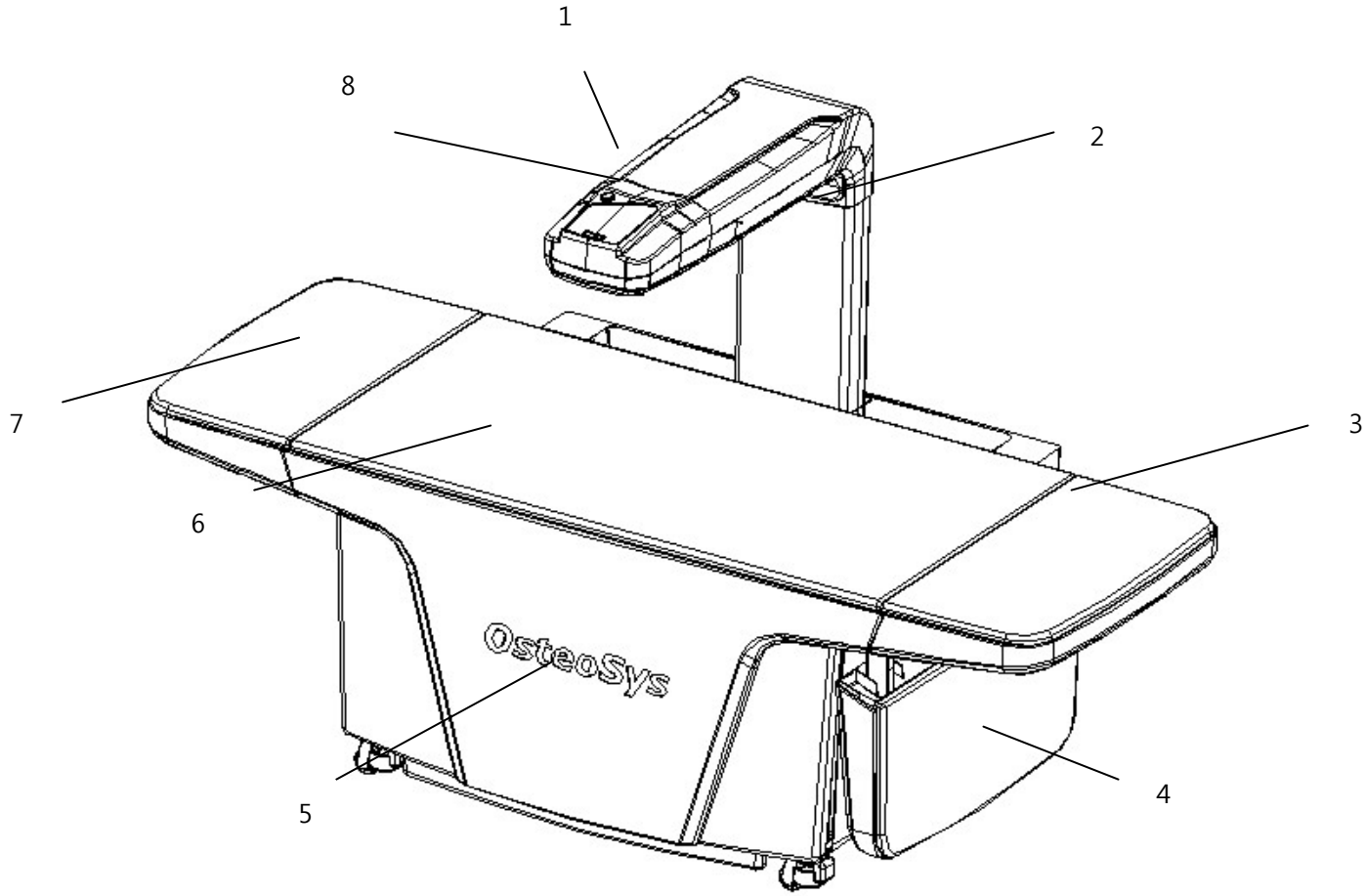
1. Product Description 22
2. Outlines of DEXXUM T 24
3. System Configuration of DEXXUM T 25

1. Product Description

Osteosys' DEXXUM T is an osteoporosis diagnostic using x-ray.
It uses x-rays having two different energies and calculates the value of bone mineral density, by analyzing images acquired from scanning of spines and femurs in pencil-beam method and comparing them with collected data.

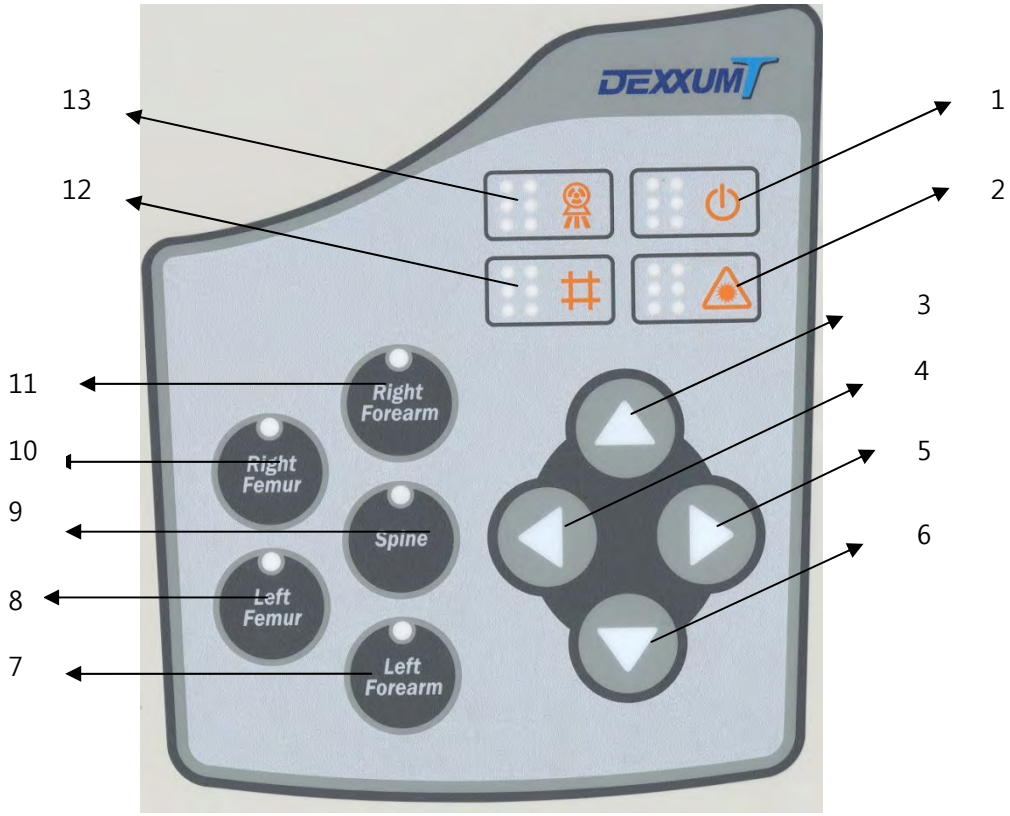
- Scanning method: Pencil beam
- Measurement points (measuring time):
  AP spine (fast: 1 min 25 sec normal: 3min 12sec)
  Femur (Fast: 1min 5sec normal: 1min 59sec)
- Measurement method:
  Non-stop Scan (AP Spine, Dual Femur)
  Simultaneous measurement of 3 points is possible
- Reference Data: Korean standard data
- Reproducibility: below 1%
- Modification of specific regions: Users can add or delete bones and tissues to reduce the errors in case of BMD calculation of fracture, implant or operating regions.
- Auto ROI: After measurement, ROI (region of interest) are divided automatically
- Radiation dose: below 10mRem per dose
- System linkage: DICOM support
- Multi-print function: Results, subject information, and trend are printed.
- Trend comparison: comparison of trend data by region

2. Outlines of DEXXUM T



1. Emergency switch
2. Carriage
3. bed wings(top)
4. bed wings(top) – folded
5. front cover
6. subject table
7. bed wings (bottom)
8. Operation switch for users

3. Outlines of User Operation Switch



1. Device "ON" : When the power of DEXXUMT equipment is turned "on", Green LED is turned on.
2. Laser pointer "ON" LED : When laser pointer is turned on, red light is turned on.
3. Move "Right": It is a direction key making it move to the right hand direction of a subject..
4. Move "Bottom": It is a direction key making it move to the feet direction of a subject.
5. Move "Top" : It is a direction key making it move to the head direction of a subject.
6. Move "Left" : It is a direction key making it move to the left hand direction of a subject.
7. Left Forearm : Select the left forearm of a subject. Green LED is turned on.
8. Left Femu r: Select the left femur of a subject. Green LED is turned on.
9. Spine : Select the spine of a subject. Green LED is turned on.
10. Right Femur : Select the right femur of a subject. Green LED is turned on.
11. Right Forearm : Select the right forearm of a subject. Green LED is turned on.
12. Shutter Open : When the shutter is opened, yellow LED is turned on.
13. X-ray ON : It is in the course of X-ray radiation and yellow red LED is turned on.

4. DEXXUM T System Configuration

- DEXXUM T
- Computer system
    1) Main frame
    2) LCD monitor
    3) Printer
- Protective wall (Domestic)
- Measurement assistant (tripod)
- Daily check Phantom
- User manual
- Service manual
- Power cable
- LAN cable for communication
- Software installation CD
- Supplies: A4 paper, printer ink

Basic Installation Method of DEXXUM T

1. Equipment Movement 27
2. Equipment Installation 29
3. Software Installation 30
1) PC LAN CARD NETWORK IP setting
2) Installation of User Program
3) Installation and Setting of Database

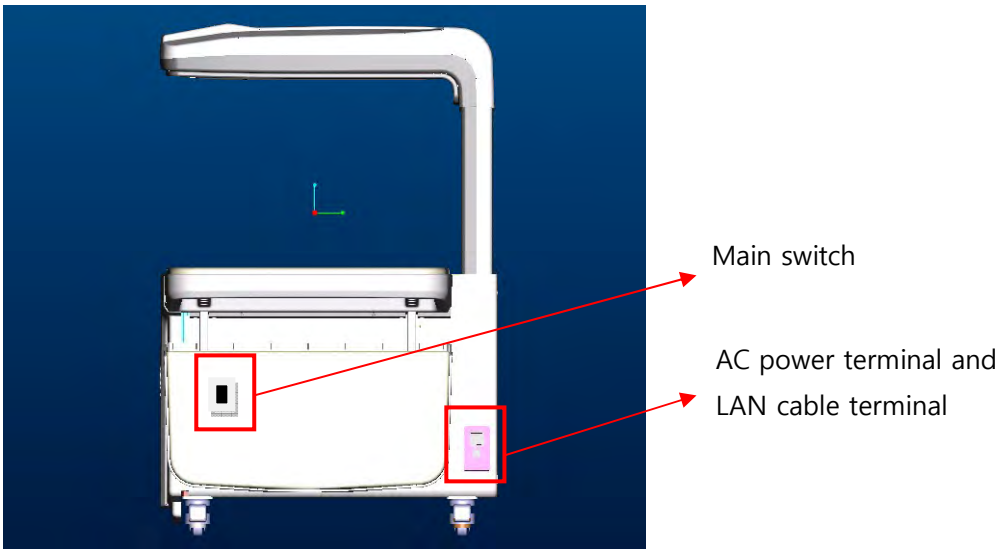
1. Equipment Movement

- DEXXUM T has 4 wheels and a fixed supporter in the lower part of equipment.
- Methods for equipment movement are as follows.

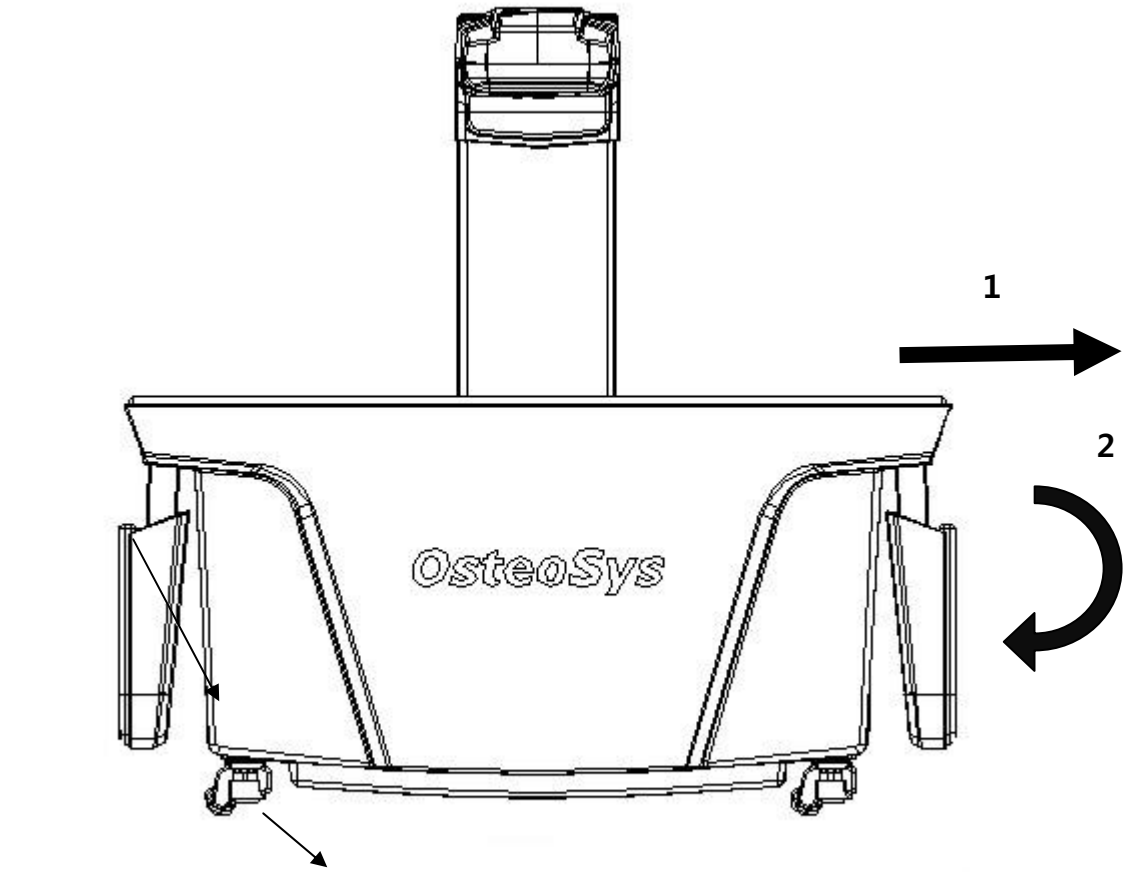
a. Turn off the main power.
b. Separate the AC power connector and LAN cable of PC from equipment.
c. Draw and lower the both wings of bed of DEXXUM T.
d. Leave a space between the supporter and floor by turning the fixed supporter anticlockwise.
e. Push the equipment using wheels.

When moving DEXXUM T, leaned or lifted, carriage shall be protected for equipment protection. In this case, contact our AS team or agencies.

Be especially careful when moving equipment, as one might get injured due to a non-fixed carriage.



Positions of main switch, power and LAN cable terminal



Fixation block is fixed when turning anti-clockwise direction

Fixation block loosens when turning clockwise

Method for folding bed wings of equipment and methods for fixing and unfixing of fixation blocks

2. Equipment Installation

- The sequences of equipment installation are in reverse order of equipment movement.
- Methods for equipment installation are as follows.

a. Unpack a box and remove the carriage in equipment and HFG fixation block.
b. Push the equipment and place it in re-installation space.
c. Have four parts of fixation block and ground to be in contact by turning it clockwise.
d. Lift up the both wings of bed of DEXXUM T and fix them into the equipment.
e. Plug it into AC power and connect LAN cable and PC.
f. Turn on the main power.

Installing or storing in unsuitable places can slow down performance of equipment or cause damage or abnormal operating.

Examples of unsuitable places for equipment installment or storing

1) The place with too much humidity
2) The place exposed to direct rays of sun
3) The place whose temperature is too much higher or too much lower than adequate temperature for product (15 ℃ ~ 40 ℃)
4) The place that can affect products due to impact or vibration
5) The place slanted too sharply
6) Storage of chemicals
7) The place where equipment generating a magnetic field is placed

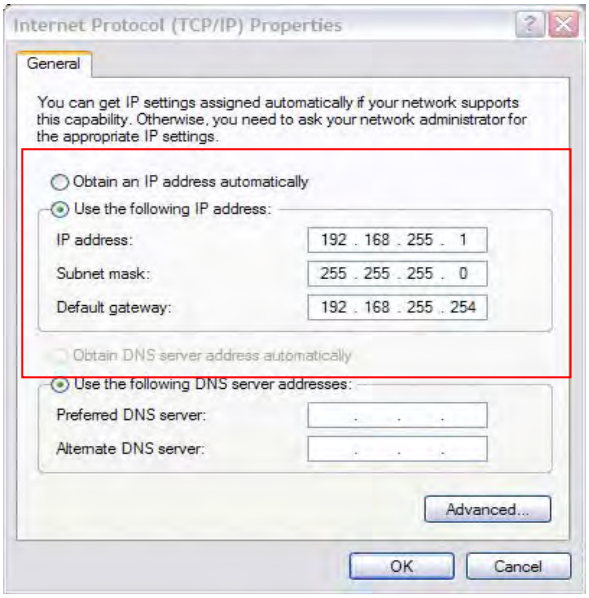
Be sure to check if main power is turned off and then connect, when reinstalling equipment and authorizing AC power. Otherwise the equipment can be damaged.
Equipment shall be placed on even ground. Otherwise it can be moved to the direction to which carriage is slanted or HFG is slanted, when power is turned off.

3. Software Installation

1) PC LAN CARD Network IP Setting

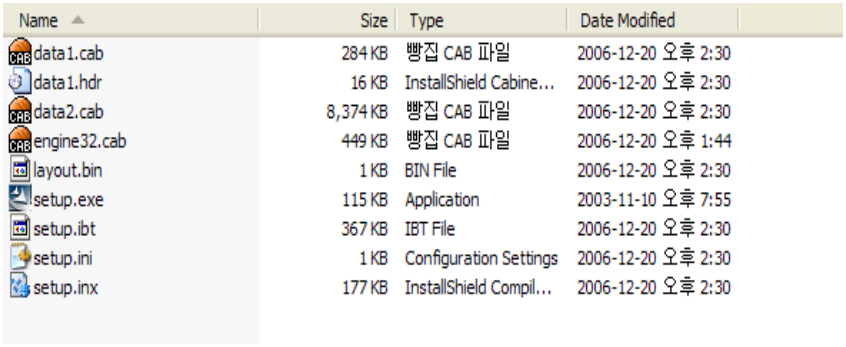
DEXXUM T communicates over LAN with PC. Therefore, it is necessary to set up specific IP address in general PC to communicate between PC and equipment.

a. Right click the network setting icon on the desktop.
b. Click the "properties".
c. Click the Internet protocol (TCP/IP) at the bottom of list under the general tap in the properties window and then click the "properties".
d. When the window appears as below, enter the following in the column of IP address and click the "OK".
e. Click the "OK" and finish the setting.

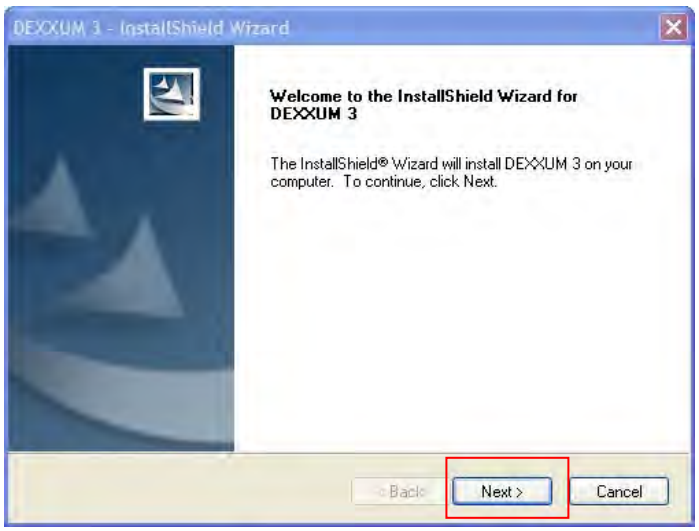

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 255 . 1
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 255 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

2) Installation of User Program

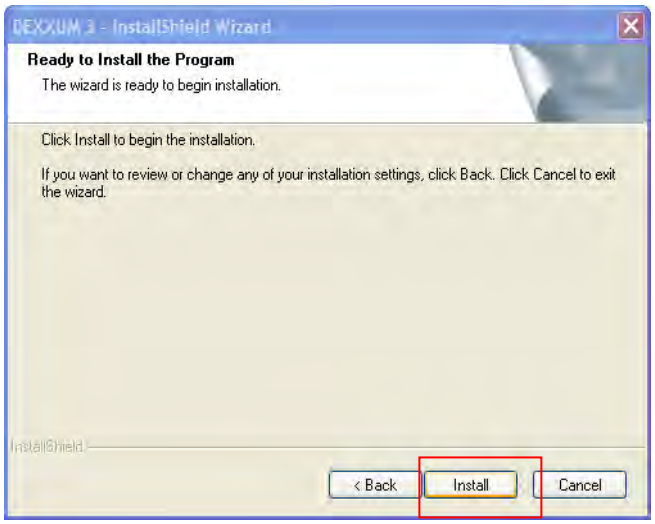
a. Insert your CD into the PC.
b. Click the "My Computer" icon and right click the drive where CD was inserted.
c. Click the "Explore" and find out and click the " Setup.exe " file when window appears.


Name
Size
Type
Date Modified
data1.cab 284 KB 빵집 CAB 파일 2006-12-20 오후 2:30
data1.hdr 16 KB InstallShield Cabine... 2006-12-20 오후 2:30
data2.cab 8,374 KB 빵집 CAB 파일 2006-12-20 오후 2:30
engine32.cab 449 KB 빵집 CAB 파일 2006-12-20 오후 1:44
layout.bin 1 KB BIN File 2006-12-20 오후 2:30
setup.exe 115 KB Application 2003-11-10 오후 7:55
setup.ibt 367 KB IBT File 2006-12-20 오후 2:30
setup.ini 1 KB Configuration Settings 2006-12-20 오후 2:30
setup.inx 177 KB InstallShield Compil... 2006-12-20 오후 2:30

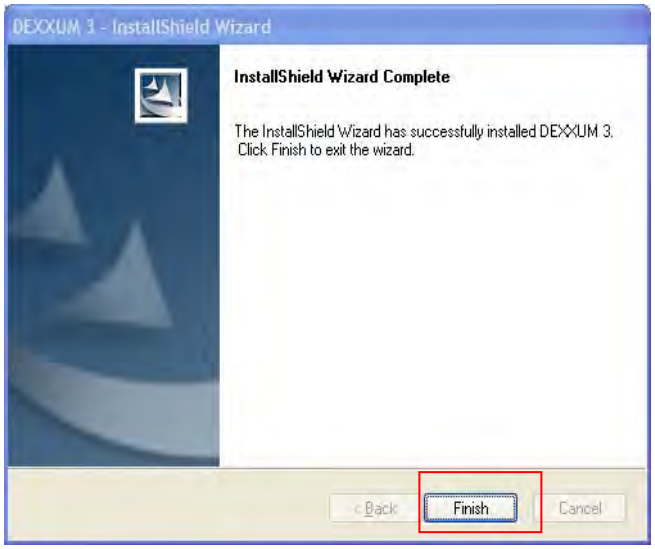
d. Click the "Next" when the following window appears.


DEXXUM 3 - InstallShield Wizard
Welcome to the InstallShield Wizard for DEXXUM 3
The InstallShield® Wizard will install DEXXUM 3 on your computer. To continue, click Next.
< Back
Next >
Cancel

e. Click the "Install" and start the installation when the following window appears.


DEXXUM 3 - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

f.Finish the Installation.


DEXXUM 3 - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed DEXXUM 3. Click Finish to exit the wizard.
< Back
Finish
Cancel

3) Installation of Database

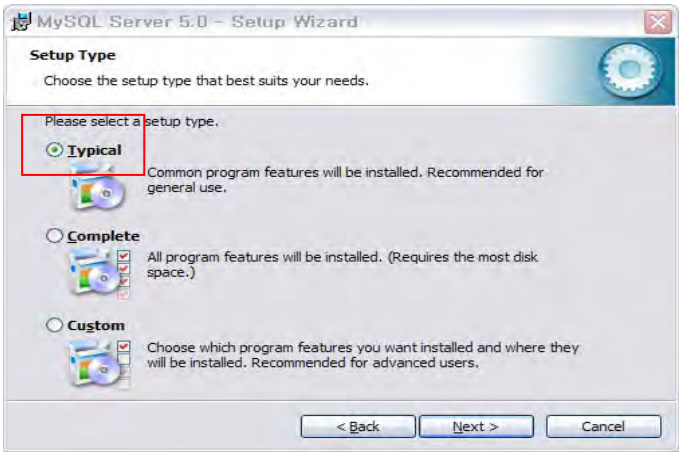
- Install the database storing patient information.

a. Go to the "Database" folder in the path where user program is installed. (Move to C:₩Program files₩Osteosys₩DEXXUM T₩Database.)

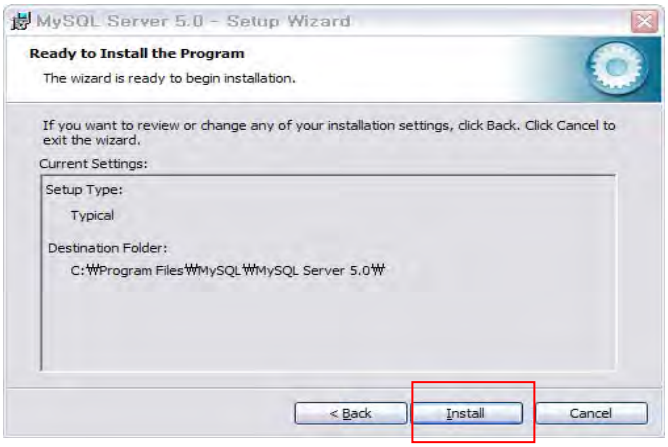
b. Double click the "Setup.exe" of database folder.

MySQL Server 5.0 - Setup Wizard
Welcome to the Setup Wizard for MySQL Server 5.0
The Setup Wizard will allow you to modify, repair, or remove MySQL Server 5.0. To continue, click Next.
MySQL
< Back
Next >
Cancel

c. Press the "Next" and select the "Typical Type".


MySQL Server 5.0 - Setup Wizard
Setup Type
Choose the setup type that best suits your needs.
Please select a setup type.
Typical
Common program features will be installed. Recommended for general use.
Complete
All program features will be installed. (Requires the most disk space.)
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
< Back
Next >
Cancel

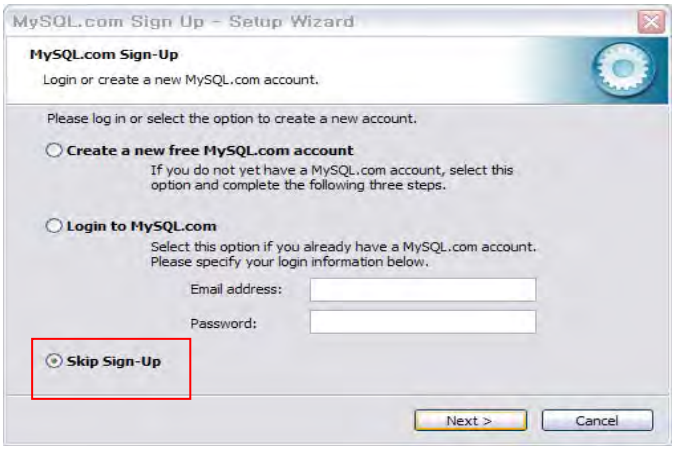
d. Click the "Install".


MySQL Server 5.0 - Setup Wizard
Ready to Install the Program
The wizard is ready to begin installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
Current Settings:
Setup Type:
Typical
Destination Folder:
C:₩Program Files₩MySQL₩MySQL Server 5.0₩
< Back
Install
Cancel

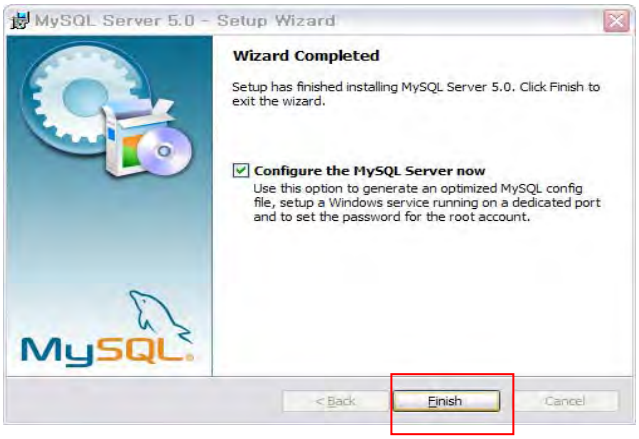
e. Database is being installed.

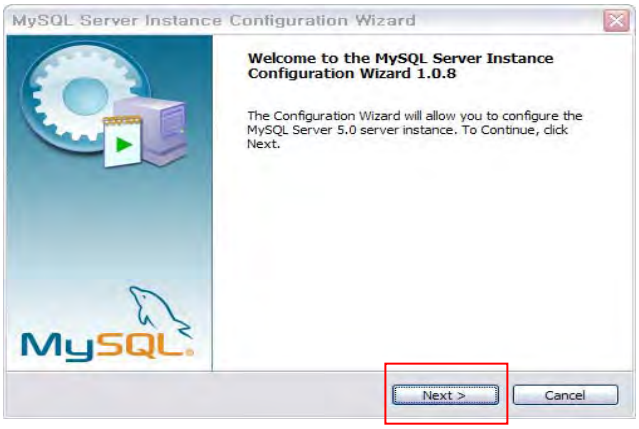
MySQL Server 5.0 - Setup Wizard
Installing MySQL Server 5.0
The program features you selected are being installed.
Please wait while the Setup Wizard installs MySQL Server 5.0. This may take several minutes.
Status:
< Back
Next >
Cancel

f. When "My-SQL sign up" window appears, click the "Skip Sign-up"and then click the "Next".

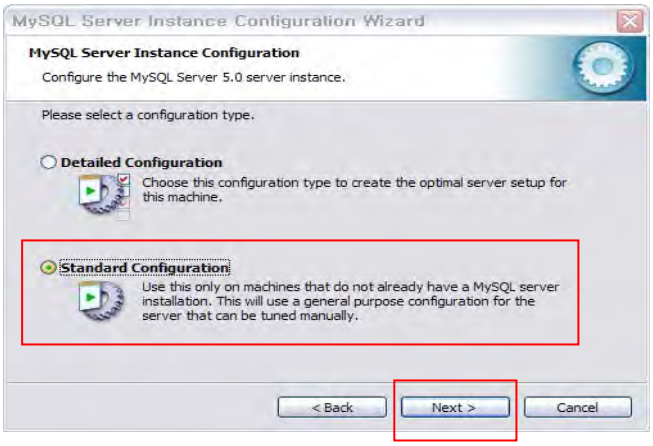

MySQL.com Sign Up - Setup Wizard
MySQL.com Sign-Up
Login or create a new MySQL.com account.
Please log in or select the option to create a new account.
Create a new free MySQL.com account
If you do not yet have a MySQL.com account, select this option and complete the following three steps.
Login to MySQL.com
Select this option if you already have a MySQL.com account. Please specify your login information below.
Email address:
Password:
Skip Sign-Up
Next >
Cancel

g. Click the "Finish" when database has been installed.
It automatically connects to optimal database setting and then click the "Next".

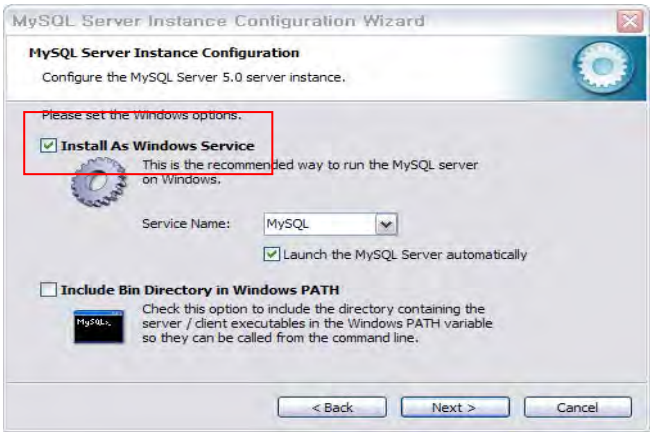

MySQL Server 5.0 - Setup Wizard
Wizard Completed
Setup has finished installing MySQL Server 5.0. Click Finish to exit the wizard.
Configure the MySQL Server now
Use this option to generate an optimized MySQL config file, setup a Windows service running on a dedicated port and to set the password for the root account.
MySQL
< Back
Finish
Cancel


MySQL Server Instance Configuration Wizard
Welcome to the MySQL Server Instance Configuration Wizard 1.0.8
The Configuration Wizard will allow you to configure the MySQL Server 5.0 server instance. To Continue, click Next.
MySQL
Next >
Cancel

h. When "MySQL server interface configuration" window appears, select the "Standard Configuration" and click the "Next".


MySQL Server Instance Configuration Wizard
MySQL Server Instance Configuration
Configure the MySQL Server 5.0 server instance.
Please select a configuration type.
Detailed Configuration
Choose this configuration type to create the optimal server setup for this machine.
Standard Configuration
Use this only on machines that do not already have a MySQL server installation. This will use a general purpose configuration for the server that can be tuned manually.
< Back
Next >
Cancel

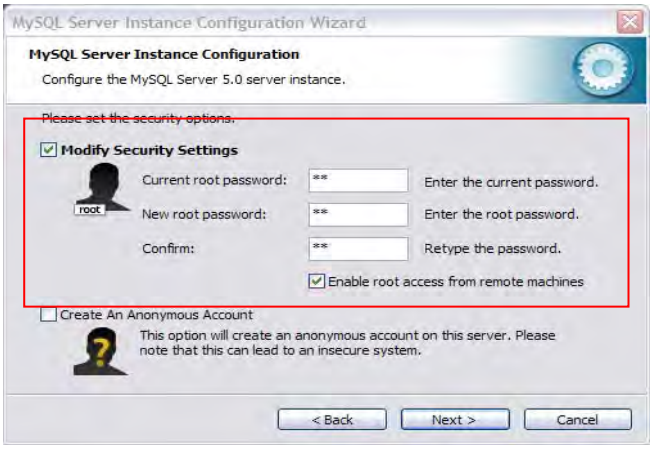
i. Select the "Install As windows Service" checkbox in the next window and press the "Next".


MySQL Server Instance Configuration Wizard
MySQL Server Instance Configuration
Configure the MySQL Server 5.0 server instance.
Please set the Windows options.
Install As Windows Service
This is the recommended way to run the MySQL server on Windows.
Service Name:
MySQL
Launch the MySQL Server automatically
Include Bin Directory in Windows PATH
Check this option to include the directory containing the server / client executables in the Windows PATH variable so they can be called from the command line.
< Back
Next >
Cancel

j.Check the "Mysql Secutiry Settings" and insert the following in the blank and click the "Next".

Current root Password: **SA**
Next root Password: **SA**
Confirm: **SA**

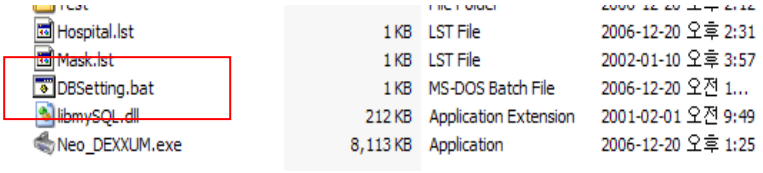
Select the checkbox of "Enable root access from remote machine".


MySQL Server Instance Configuration Wizard
MySQL Server Instance Configuration
Configure the MySQL Server 5.0 server instance.
Please set the security options.
Modify Security Settings
Current root password:
New root password:
Confirm:
Enter the current password.
Enter the root password.
Retype the password.
Enable root access from remote machines
Create An Anonymous Account
This option will create an anonymous account on this server. Please note that this can lead to an insecure system.
< Back
Next >
Cancel

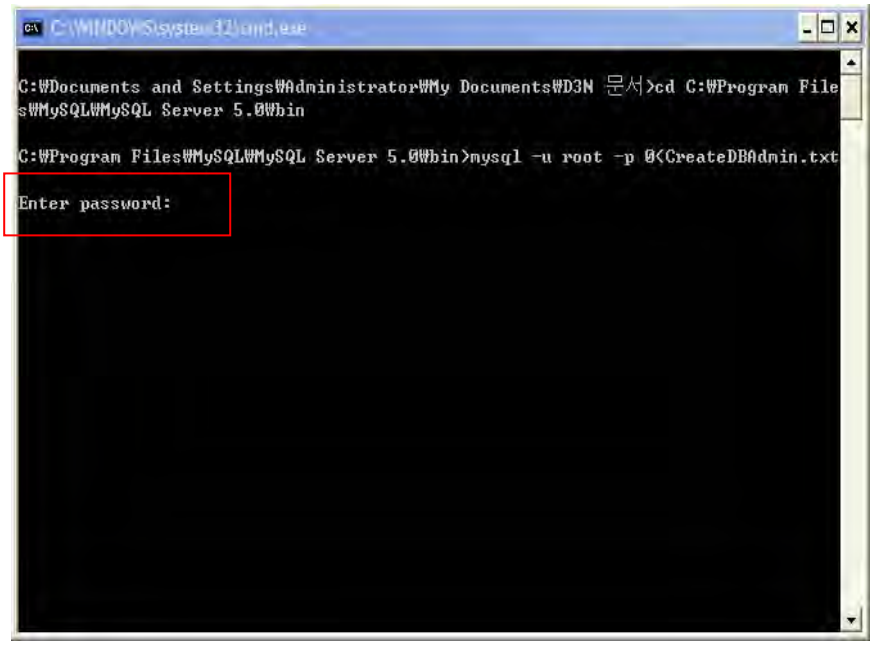
k. Configuration of database has been finished.

l. Click the "My computer" icon on the desktop and enter the folder path of C:₩Program files₩Osteosys₩DEXXUM T

m. Execute the "DBsetting.bat" file.


Hospital.lst 1 KB LST File 2006-12-20 오후 2:31
Mask.lst 1 KB LST File 2002-01-10 오후 3:57
DBSetting.bat 1 KB MS-DOS Batch File 2006-12-20 오전 1...
libmySQL.dll 212 KB Application Extension 2001-02-01 오전 9:49
Neo_DEXXUM.exe 8,113 KB Application 2006-12-20 오후 1:25

n. Once "DBsettings.bat" file is executed, "C:₩Windows₩System32₩CMD.exe" window appears. Insert the " **SA** " when the item of "Enter password : "appears.


C:₩Documents and Settings₩Administrator₩My Documents₩D3N 문서>cd C:₩Program Files₩MySQL₩MySQL Server 5.0₩bin
C:₩Program Files₩MySQL₩MySQL Server 5.0₩bin>mysql -u root -p 0<CreateDBAdmin.txt
Enter password:

o. Automatic file is executed and installation has been completed.

The Directions of DEXXUM T Program

1. Starting of Program 39
2. Configuration 39
3. Registration of Doctors 44
4. Daily Check 45
5. Registration of Personal Information of Subjects 49
6. Modification of Personal Information of Subjects 50
7. Modification of Personal Information of Subjects 50
8. Searching of Subject Data 51
9. Measurement of Bone Mineral Density 52
10. Interruption of Bone Mineral Density Measurement 60
11. ReScan 61
12. Descriptions of Analysis Screen 63
13. Analysis of Spine Images 67
14. Analysis of Femur Images 68
15. Use of Brush 70
16. Print of Results and PACS Linkage 73
17. Print of Trend 76

1. Starting of Program

- Turn on the equipment, start the user program by clicking the "DEXXUM T" icon in the desktop. Power LED of user operation switch is turned "on" and equipment arm goes to the initial position if it is not there.

2. Configuration

- Configuration shall be done once at first after installation.
- Configuration is done in a user program for equipment use.
- Select the checkbox according to the descriptions by each item.

1) Settings Tap

a. Patient ID Mask

- Consecutive number: Give ID number serially from 1.
- User-definition Blank: Insert "A" (Letters from A to Z can be inserted. Other characters cannot be inserted.)
  Insert "9" (Numbers from 0 to 9 can be inserted. Letters other than numbers cannot be inserted.)
  Insert "#" (Both alphabetical letters and numbers can be inserted regardless of digit number.)

If ID 8AD123 shall be inserted
➔ " 9AA999 " or " ##### " or "##########"
"#" can be used regardless of digit number.

- Resident registration number of Korea Republic

b. Default Settings

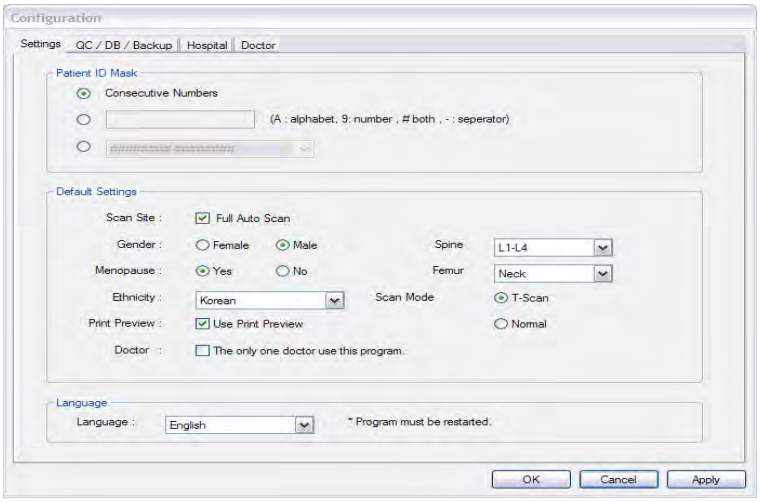
- Scan Site: It is an option that sets up more than two regions (Spine / Left Femur / Right Femur) in continuous mode

  Once it is set up, position is set up at a time without selecting position by site before finishing, using one scan method.

- Gender: It is an option that selects the basic setup of subject gender.
- Menopause: It is an option that selects if the subject experienced menopause when examining a female subject.
- Ethnicity: It is an option that selects the basic set up of subject ethnicity.
- Print Preview: Set the basic setup of print preview.
- Doctor: It is selected when one person uses equipment and in this setting password is not asked when program starts.
- Forearm Scan: It sets up the forearm measurement mode.
- Spine: It sets up if the representative value of spine shown in report will be printed.
- Femur: It sets up if the representative value of femur shown in report will be printed.
- Scan Mode: It sets up the use of T-Scan Mode.

c. Language

- Language can be selected among English, Korean, German, Spanish and Chinese. (Be sure to restart the program so that it might be applied.)



2) QC/DB/Back UP

a. Calibration

- Fix the setup on calibration.
-

● Interval of daily test: Set up the calibration interval.

● Image Files Path: Appoint the folder where subject's images are to be stored. (value: D:₩DT₩image)

b. Database

- It is a setup related to database and fixed when network mode is used.

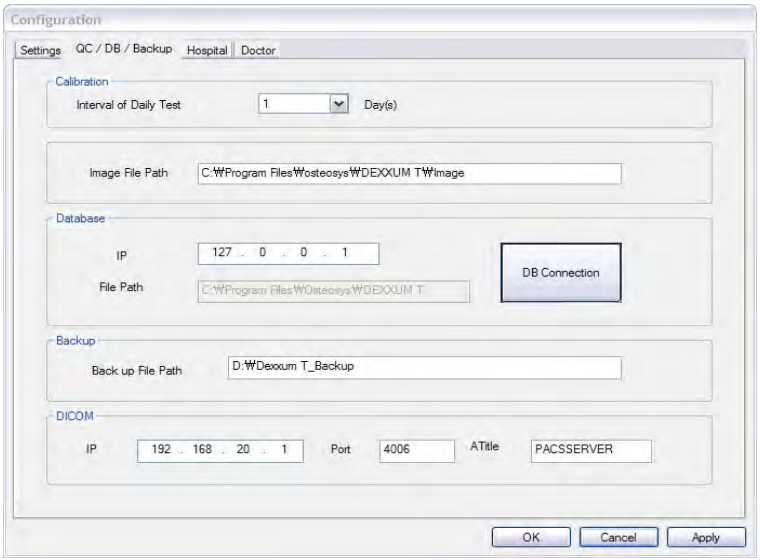
c. Back up

- Back up File Path: Appoint the folder where subject's data is to be backed up. (value: D:₩D3N_Backup)

d. DICOM

- Set up the DICOM.

● Set up the IP / Port / Atitle suitable for each hospital.



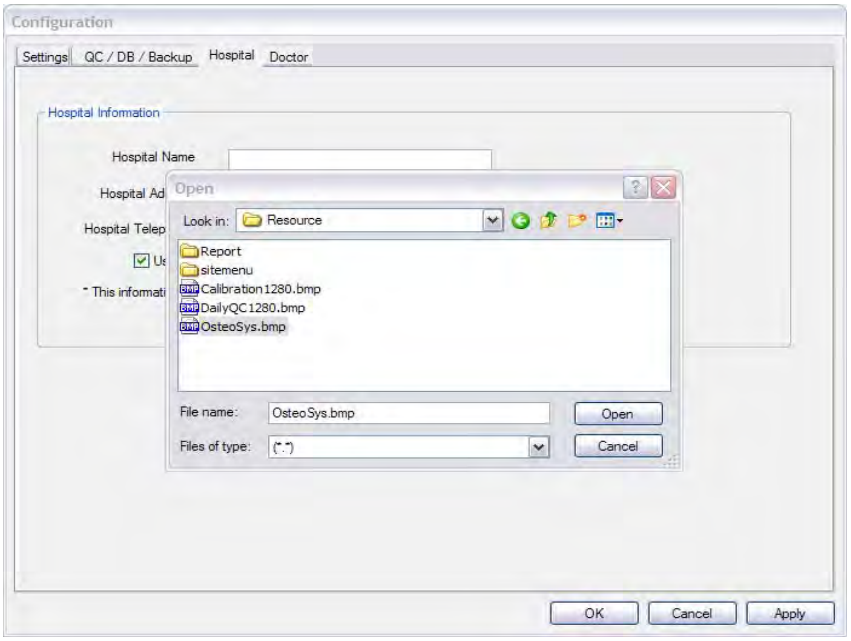
3) Hospital

- Enter the hospital information.
- The hospital information is shown on the top of subject's report paper.

a. Hospital information

- Hospital Name: Enter the hospital name.
- Hospital Address: Enter the hospital address.
- Hospital Telephone: Enter the hospital telephone numbers.

Use LOGO : It sets up if image file of hospital will be shown in report paper. To add logo, you can enter the path of hospital logo image file into path column.



Logo addition

4) Doctor

- It has password setting on doctors' name, telephone numbers, fields, and software use.

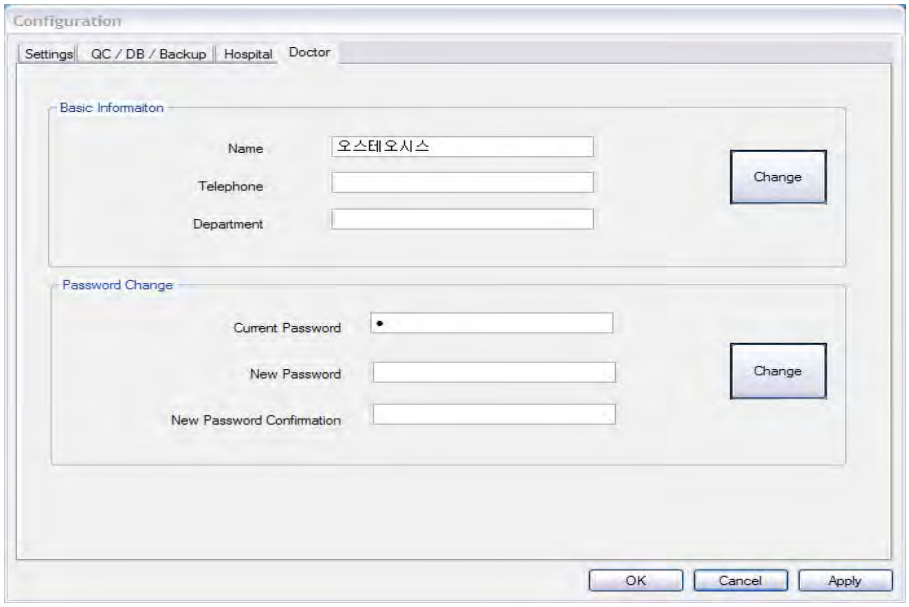
a. Basic information

- Name: Enter the name of doctor in charge who uses it.
- Telephone: Enter the telephone number of doctor in charge.
- Department: Enter the department of doctor in charge.

b. Password Change

- Change the password of doctor in charge being used.

- Current Password: Enter the password of doctor in charge at present.
- New Password: Enter the new password of doctor in charge at present to be changed.
- New password Confirmation: Enter the new password one more time.



3. Registration of Doctors

User program of DEXXUM T reports patient records by setting separate password by doctor when many doctors use it. When one doctor uses it, refer to "Doctor" column of configuration at page 35.

a. Doctor Selection Menu

- Select: If there are many doctors, click a doctor and Select.
- New: It is used when a new doctor is added.

  Delete: It is used to delete the name of doctor and it can be moved to another doctor database or deleted completely, if there is patient data in database.
- Exit: It is selected when the user forgot his password or finished the program.

b. Doctor select

- Click the "Select" button after selecting a doctor, or double click after selection.

c. Insertion of Password

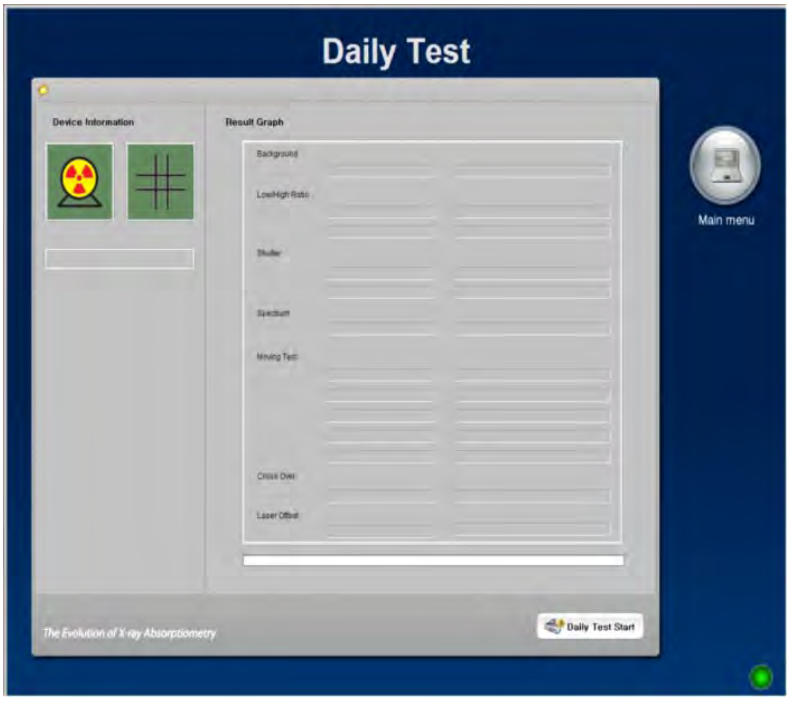
- Enter the password when password window appears and press "OK".

If you forget your password, contact AS center of our company for protection of personal information.

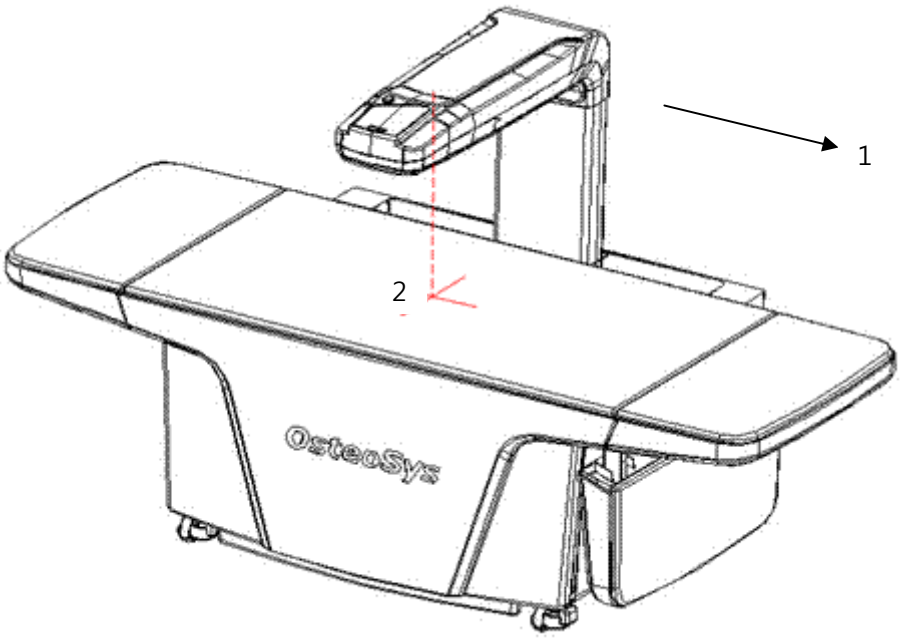
4. Daily Test

- DEXXUM T requires daily check, according to the intervals set up in configuration, using daily check phantom.
  It is recommended to carry out daily test once a day for the more exact use of equipment.

a. Click the "Daily Test" icon, the second icon from the upper end of main screen of user program.
b. There are red/green indicators that show communication connection in right bottom of the screen.
   In case of red, stand by for a while until it turns to green.
   Red: communication between equipment and PC is in preparation.
   Green: equipment and PC is communicating with each other.



c. Click the "Daily Test Start" button at the bottom when it turns to green.
d. Carriage of equipment starts to move to default position and laser pointer is turned on.



Do not stare directly at the laser pointer, as it can cause serious damage to eyes.

e. Place the daily test phantom with reference to picture A and B.

Place the phantom on a cross mark of laser point of equipment. At this time, have the cross mark indicated in phantom face inwards as shown in picture A, and parallel inclined plane of phantom and a side of equipment.

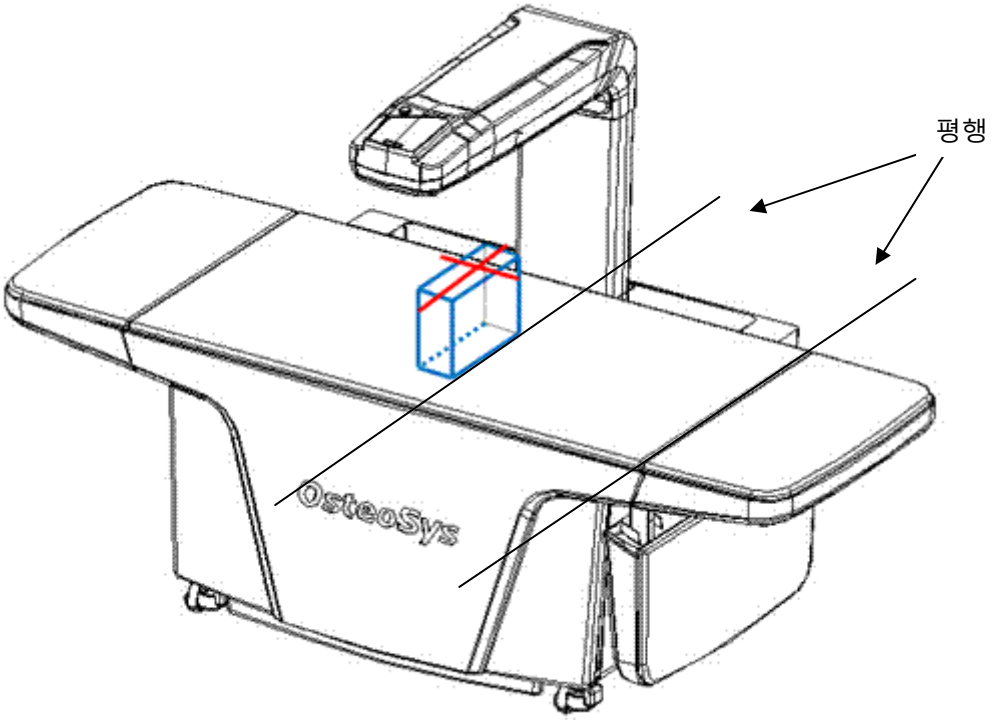


FIG A.

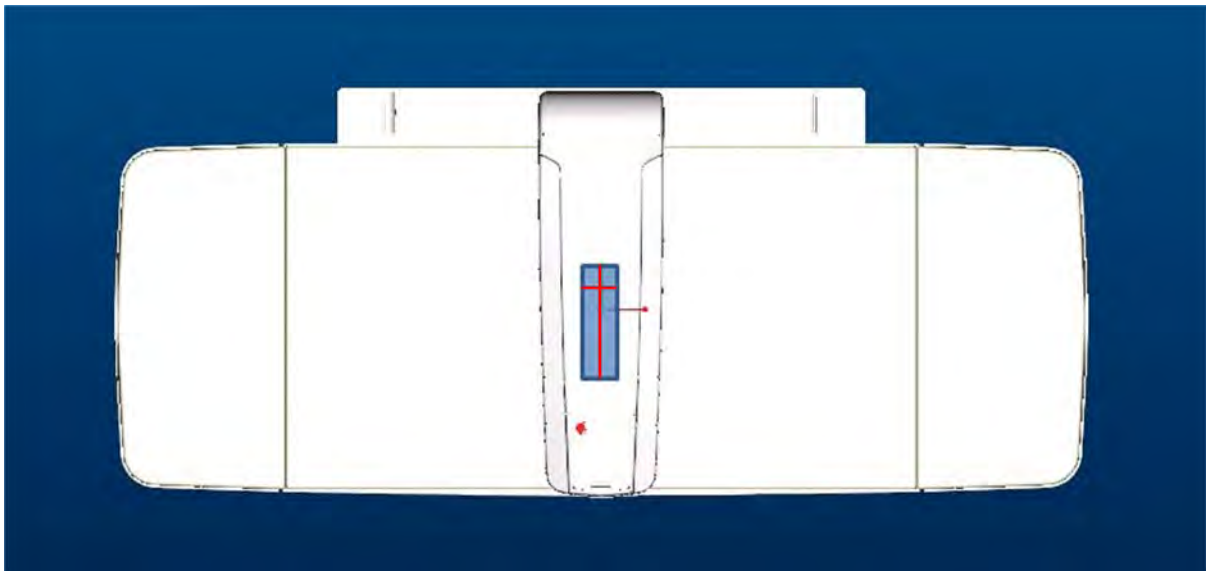
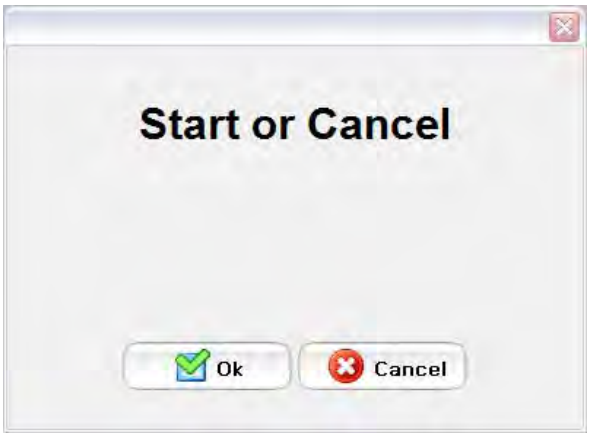


FIG B

f. If you intend to implement the daily check in the message window of "Start or Cancel", click the "Start"button to implement the daily check, and click the "Cancel"button to cancel it.



g. Implement the daily check.
h. If the massage of "Daily Phantom" does not pop up, place the phantom in the exact position and measure it again.

i. When the check is completed, go to the initial position.

Daily check is implemented automatically until the equipment check is completed. Be careful not to be injured due to carelessness during equipment operation as equipment may move.

5. Personal Information Registration of Subjects

Insert the personal information of subjects. Exact values shall be entered as measurement mode varies according to the personal data of patients.

- Add: Register the subjects.
- Search: Search a subject satisfying the condition in the subject list.
- Modify: Modify the personal data of the selected subject.
- Delete: Delete the all the data of the selected subject.

a. Click the "Measurement" of user program.

b. Register the new patient by clicking "Add"button at the bottom of subject list.

c. Register the information when "Patient New" window pops up.

Patient ID: Enter the chart number or subject ID.

Name: Enter the name of the subject.

Birth data: Enter the date of the subject's birth.

Gender: Enter the gender of the subject.

Ethnicity: Enter the ethnicity of the subject.

Height: Enter the height of the subject. (unit: cm)

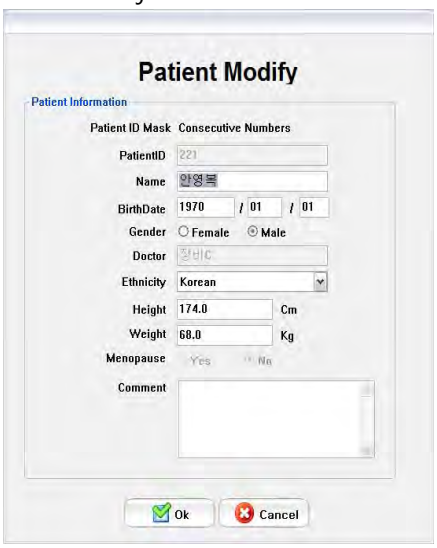
Weight: Enter the weight of the subject. (unit: kg)

Menopause: When the subject is a female, select if she has experienced menopause.

d. Click "OK" when having finished inserting.

6. Modification of Subject Personal Information

- Select a subject and click the "Modify" button to modify the personal information of the subject.



7. Deletion of Subject Data and Personal Information

- Select a subject and click the "Delete" button to delete the subject data and personal information.

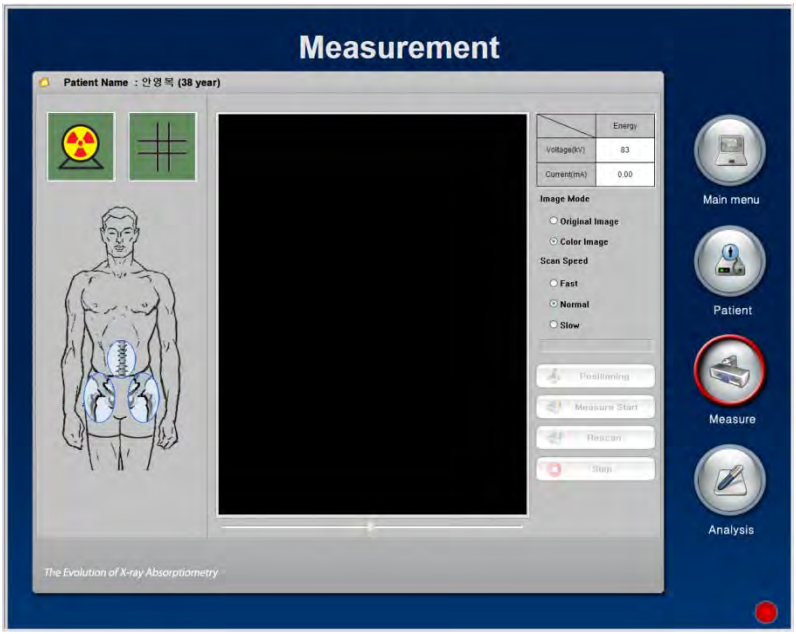
Data deleted by users on their own cannot be restored.

8. Search of Subject Data

- You can search a desired subject using the date of his birth, name, and ID as occasion demands and patient list according to search conditions is created.

9. Measurement of Bone Mineral Density

a. After entering subject information for bone mineral density measurement, double click the subject in subject list or click the "Measurement" on the right with subject selected and then "Measurement window" appears.

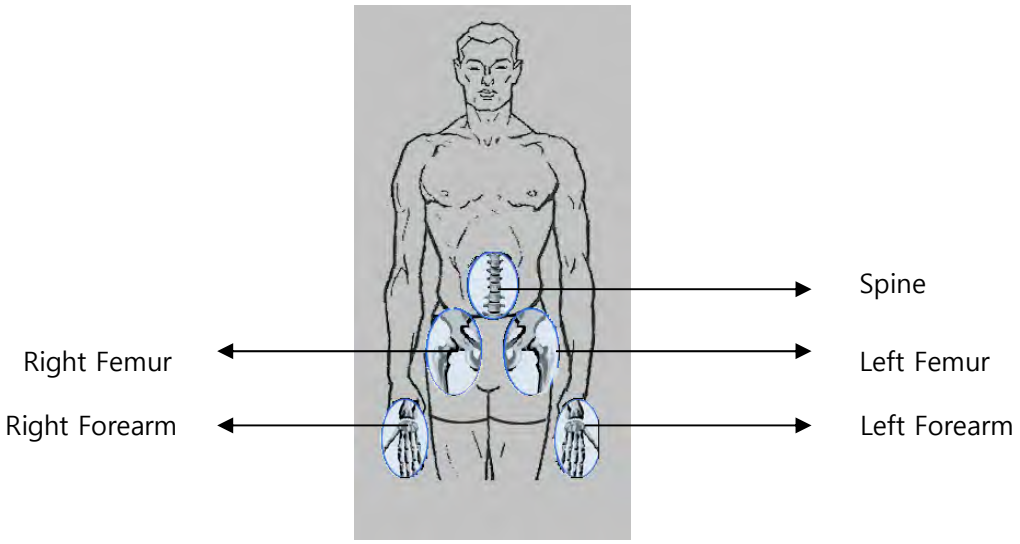


b. When scanning, spine, left femur, and right femur can be selected, and it is possible to scan by area and there is also one scan with which two or three regions can be scanned at a time.

What is One Scan?

Unlike the conventional method implemented in the process of equipment setting➔positioning➔one region measurement➔analysis➔ equipment setting for other site ➔positioning➔ other region measurement➔ analysis ➔completion,
One Scan has benefits of reducing patient waiting time and convenience of user equipment use with the steps of equipment setting➔position➔ position of the second area➔first region measurement➔ second region measurement➔analysis ➔completion when measuring more than two sites.

c. Predict the measurement points of subject referring to the picture.



Spine: Place the light of laser pointer on the navel and implement the measurement.
Femur: Lower it about 15cm ~ 20cm from the pelvis bones to leg direction and place the light of laser pointer in the middle of the thigh and scan femur.
Forearm: Place the laser pointer in the middle of wrist and scan forearm.

Forearm does not support One Scan.

d. Place the subject on equipment and fix the measurement assistant according to scanning regions.

When scanning a point of spine

Outlines of Measurement Assistant

When scanning one point of femur or in case of One Scan

Fixation of feet when measuring a region of femur or in case of One Scan

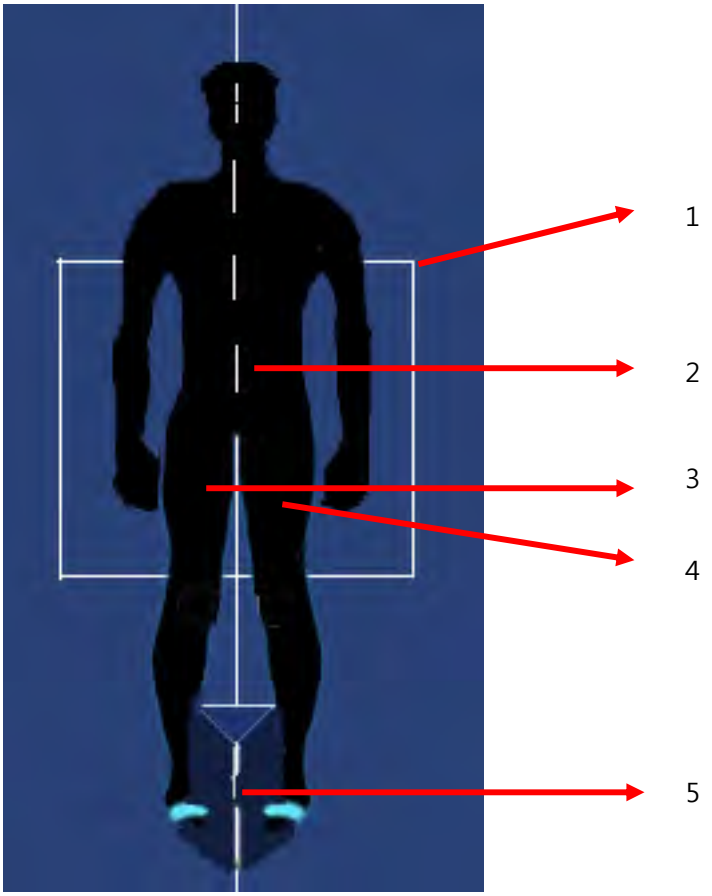
e. When pressing the "Positioning" button in "measurement" window, it stands by in the initial position for 5 minutes.
The message said it will go to "Default position" appears.

f. Check if subject has injury risk by equipment, and click the "Yes" button.
("Yes" -> automatically go to Default position
"No" -> manual movement using op-control switch)

g. When having moved to Default position, laser pointer is turned "on", and laser pointer LED of user operation switch is turned on.

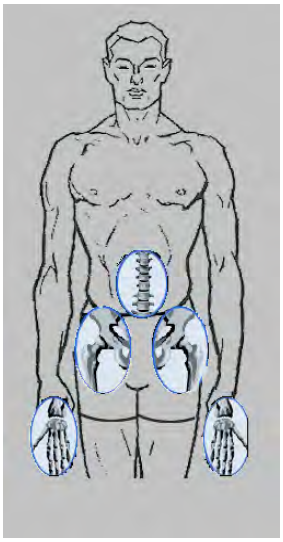
h. Go to the proper position where you can select spine, left femur, right femur of subject by pressing Top/Bottom/Left/Right keys and operating Arm of user operation switch. Press the "Select" switch of appropriate site. Once pressing the "Select" key, appropriate coordinates are stored in equipment. If you want One Scan, go to another measurement points and set up the appropriate site once again. When coordinates are set up in each site, LED (green) is turned on.

If pressing Select switch of appropriate site one time, LED (green) is turned on and present position is stored, when pressing once more, LED (green) is turned off and the stored position information is deleted.
In case of One Scan, LED of selected SW is turned on while standing by the measurement, and it informs which site is being measured while flickering, when set up site is scanned.

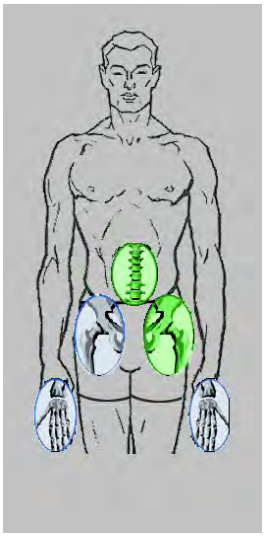


1. Scanning areas: It means the measurable areas with equipment.
2. Navel: When measuring spine, set laser pointer to a navel. Equipment automatically lowers about 4cm for measuring and scans it.
3. Right femur: Lower it about 15cm ~ 20cm from a right pelvis level and set laser pointer to the middle of femur to measure right femur.
4. Left femur: Lower it about 15cm ~ 20cm from a left pelvis level and set laser pointer to the middle of femur to measure left femur.
5. Measurement assistant :It bends inwards and fixes feet so that femur neck part may not overlap the surrounding textures and bones when measuring femur.

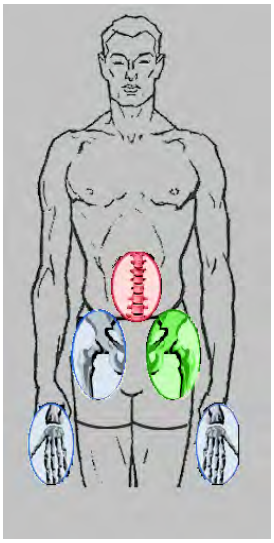
i.Click the "Measure Start" button of user program and it starts scanning at the appointed position, after measurement points are set up.



Picture A.



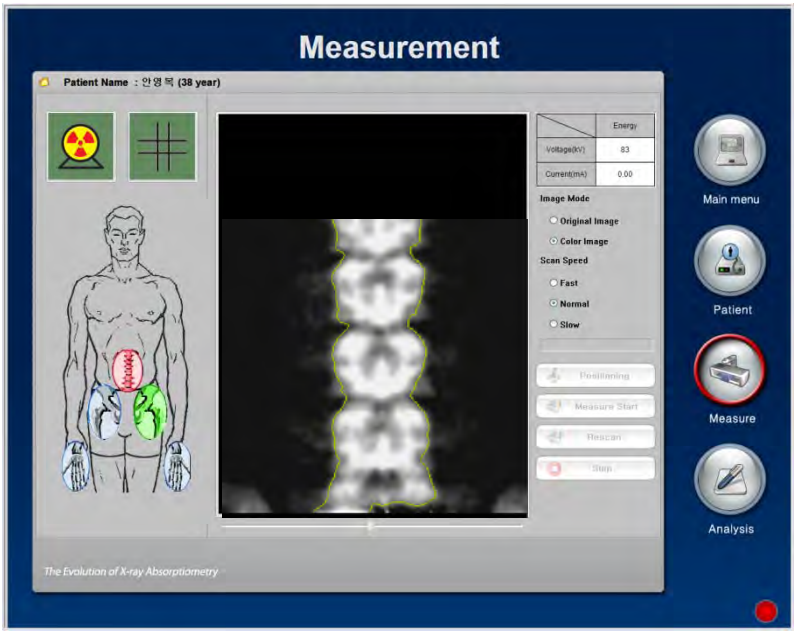
Picture B.



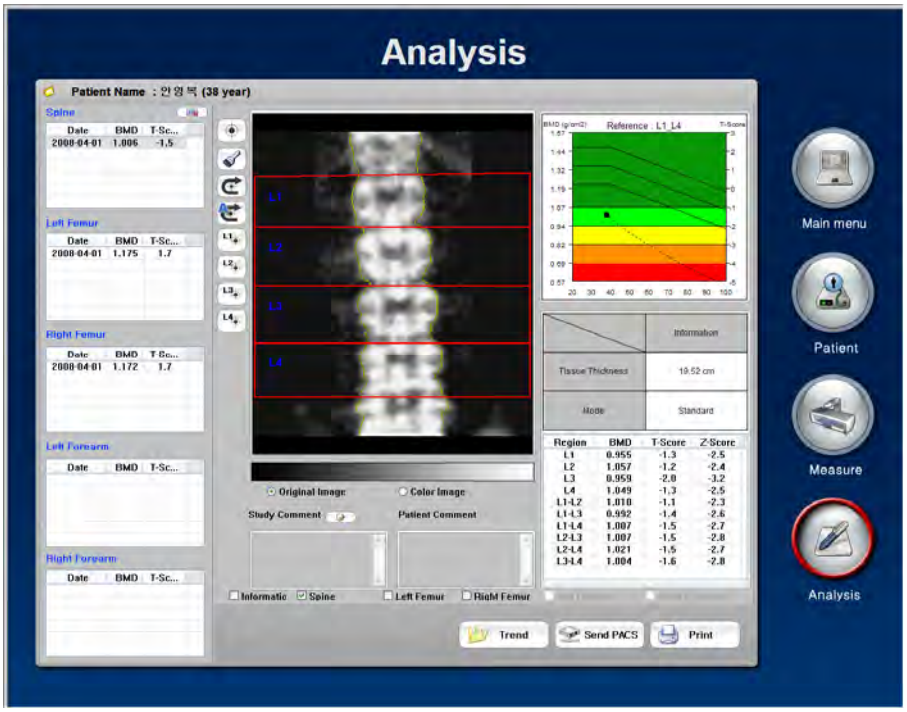
Picture C.

- Picture A: the state position is not set up
- Picture B: the state the positions of spine and left femur are set up.
- Picture C: spine is being scanned with two positions set up.

j. Scanning



k. When measurement completes, the screen automatically connects to analysis screen and Arm of equipment moves to the initial position

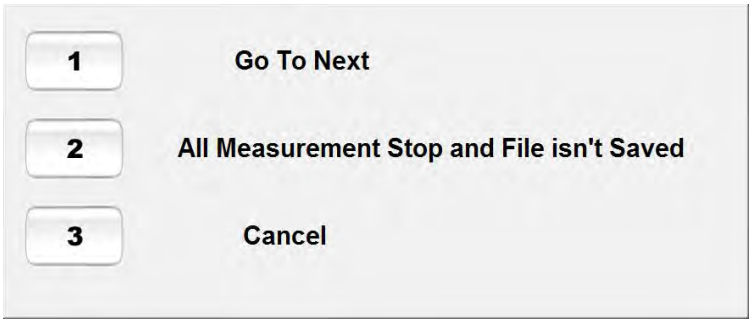


Allow the subject to lower after equipment completely returns to the initial position for the safety of subject.
In case of One Scan, when finishing one site, it goes to the next site without messages. At this time, if the subject gets up while recognizing unconsciously the measurement has completed, he can get hurt by moving Arm.

10. Interruption of Bone Mineral Density Measurement

If there is a situation needs canceling measurement immediately during bone mineral density measurement, wrong measurements, or patients' complaints of inconvenience, bone mineral density measurement shall be interrupted. In case of emergency, use the "emergency switch", and if it is not emergency situation, normal termination is possible as follows.

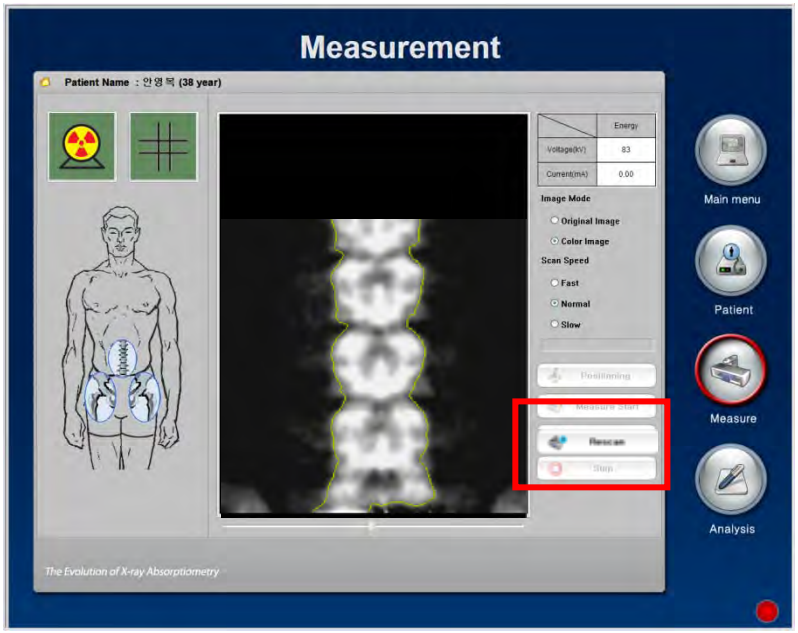
a. Click the "Stop" button while measuring.
b. The following message appears.
    1. Go to Next:
       Store the data being measured and go to the next scanning site. .
    2. All measurement Stop and File isn't saved:
       Stop the current measurement and do not save the data.
    3. Cancel:
       Continue to measure.



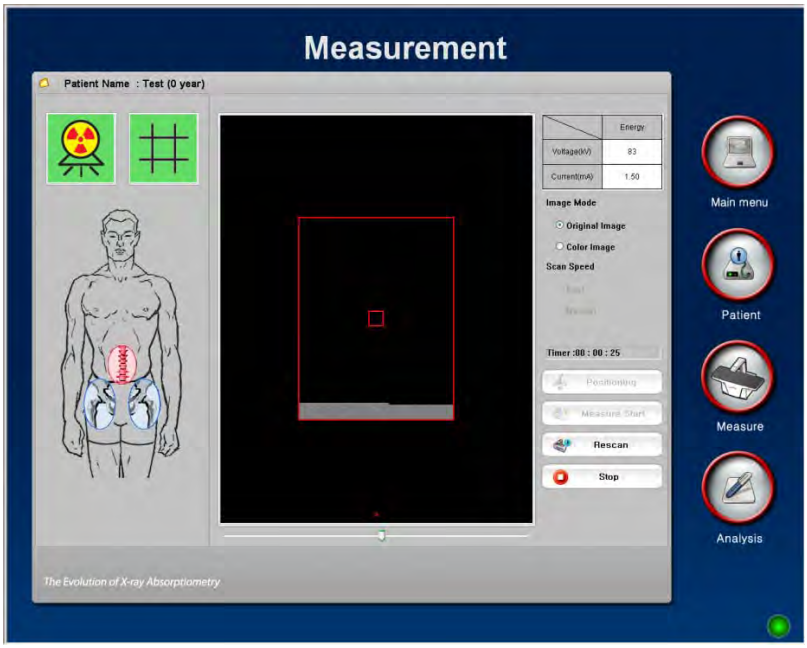
11. Re Scan

- Rescan is used to move scanning region into the region of interest without resetting during measurement when the subject's bones that are being measured are not within the region of interest.

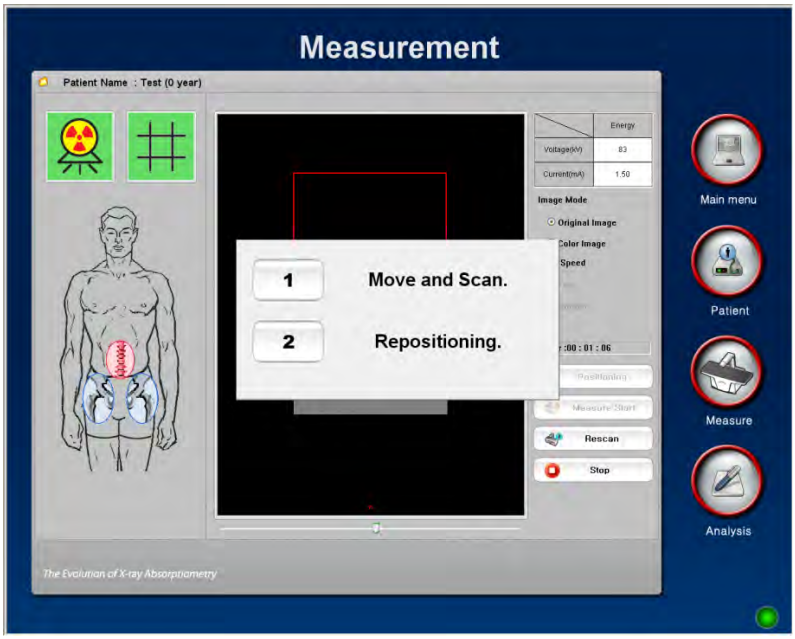
a. Click the "ReScan" during measurement.
b. Drag and click the middle of box within a red outline so that the regions to be measured may be exposed.
c. The following display window appears.
    1. Move and scan: Restart the scanning at the moved region.
    2. Repositioning: Return to reset a region.
d. Scan is restarted in the new region.



Picture A. Rescan during Measurement



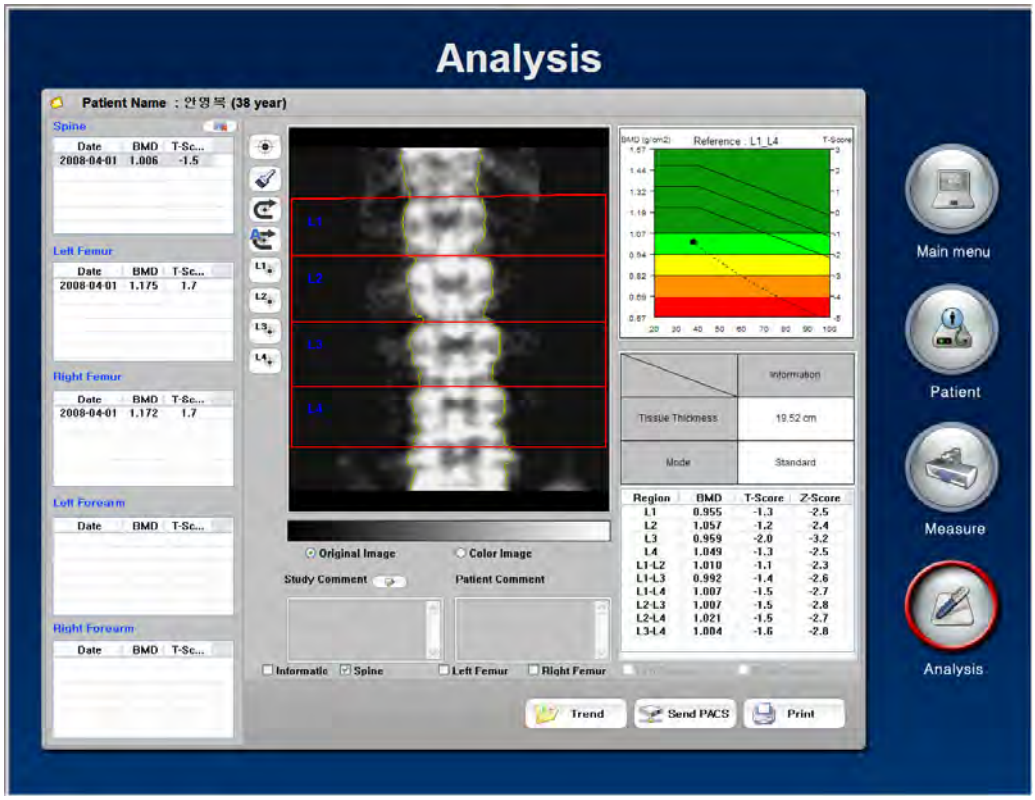
Picture B. Resetting of Regions



Picture C. Rescanning and Resetting of Regions

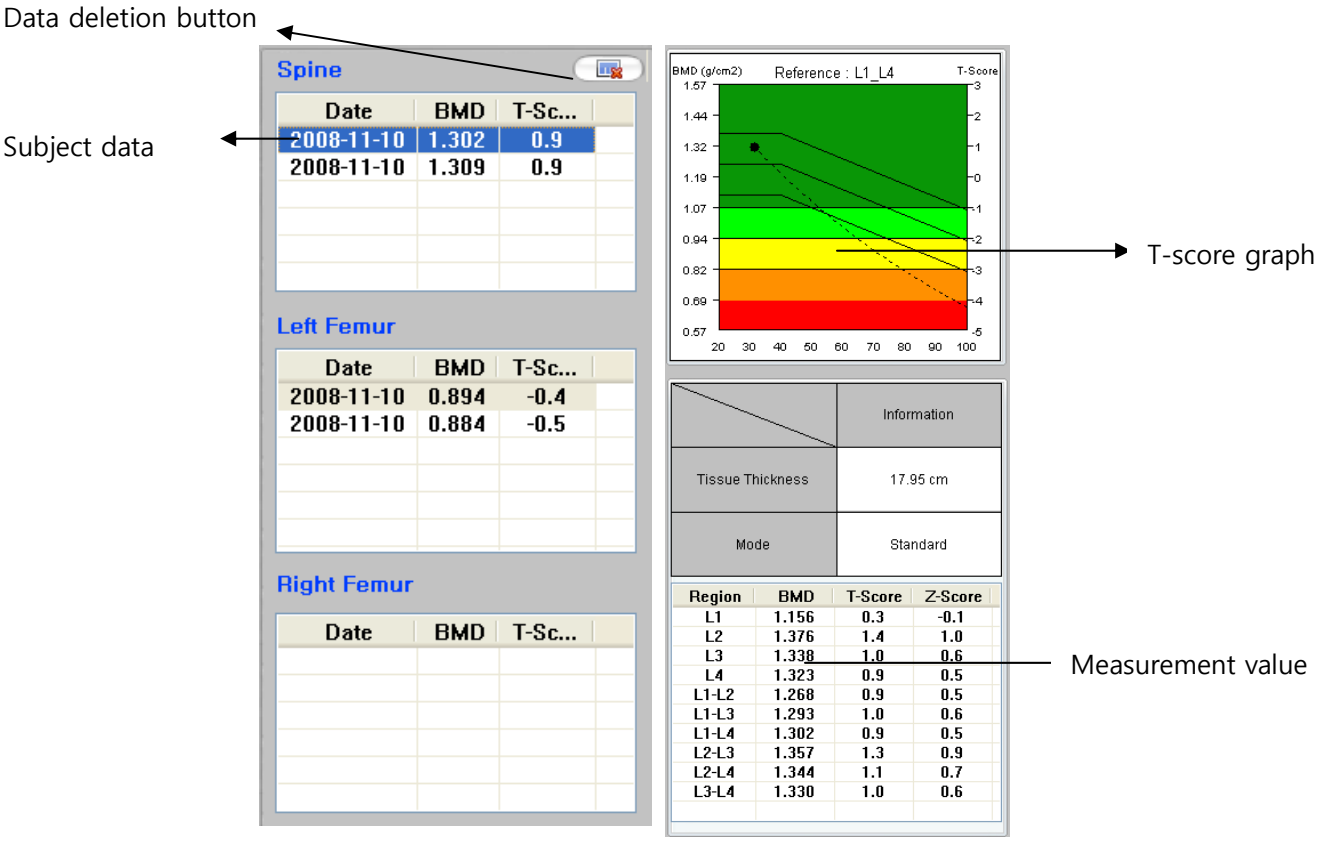
12. Description of Analysis Screen

- Subject's data which was measured are analyzed by doctors.

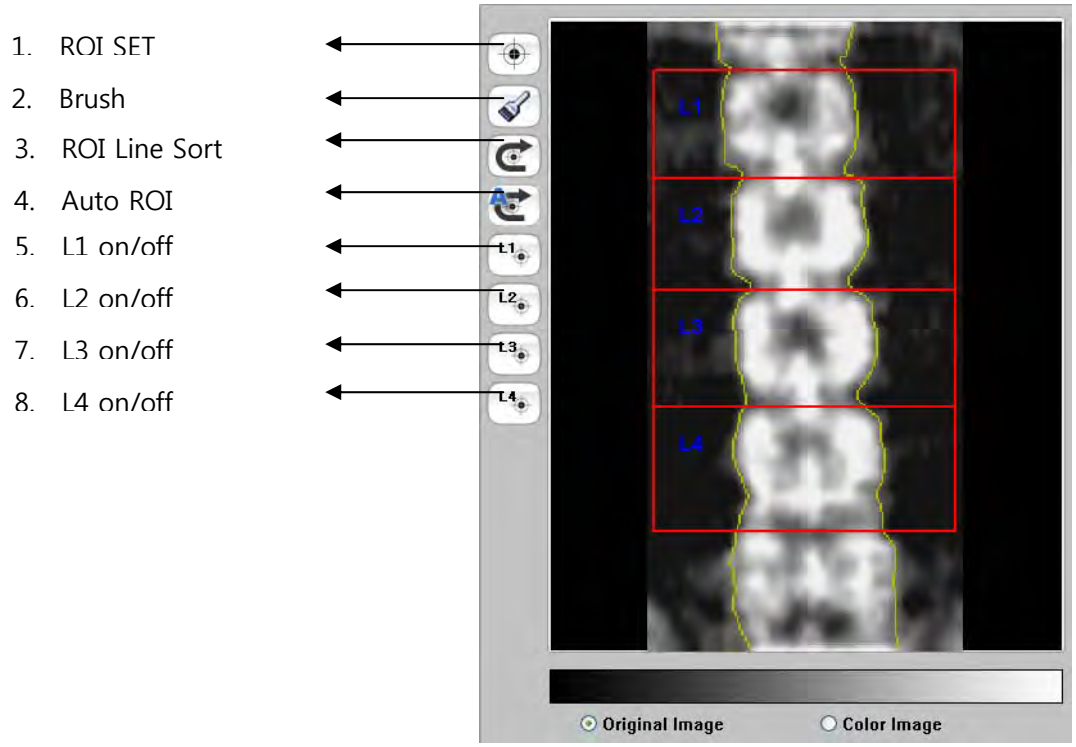


- Measured data are divided into BMD value and T-score value in screen left according to the measurement date by region, images appear in the middle of screen when clicking data.

- Right top shows normal/osteopenia/osteoporosis by age-matched T-score distribution of analyzed subjects.
- Right bottom shows bone mineral density value, T-score, and Z-core by ROI of subjects.



- Icons next to an image indicate the following.



1. ROI set: It fixes or moves ROI.
   ➔ In case of fixation, fixed region value appears, when moving, the value does not appear.
2. Brush: It is used to erase the factors causing trouble to subject's image or to include bone parts that were not captured within ROI.
3. ROI sort: It does not detect ROI automatically but implements basic sort.
4. Auto ROI: It is a function detecting ROI automatically by algorithm.
5. L1 on/off: It removes L1 region ROI from total results or adds when measuring spine. Spine.
6. L2 on/off: It removes L2 region ROI from total results or adds when measuring spine.
7. L3 on/off: It removes L3 region ROI from total results or adds when measuring spine.
8. L4 on/off: It removes L4 region ROI from total results or adds when measuring spine.

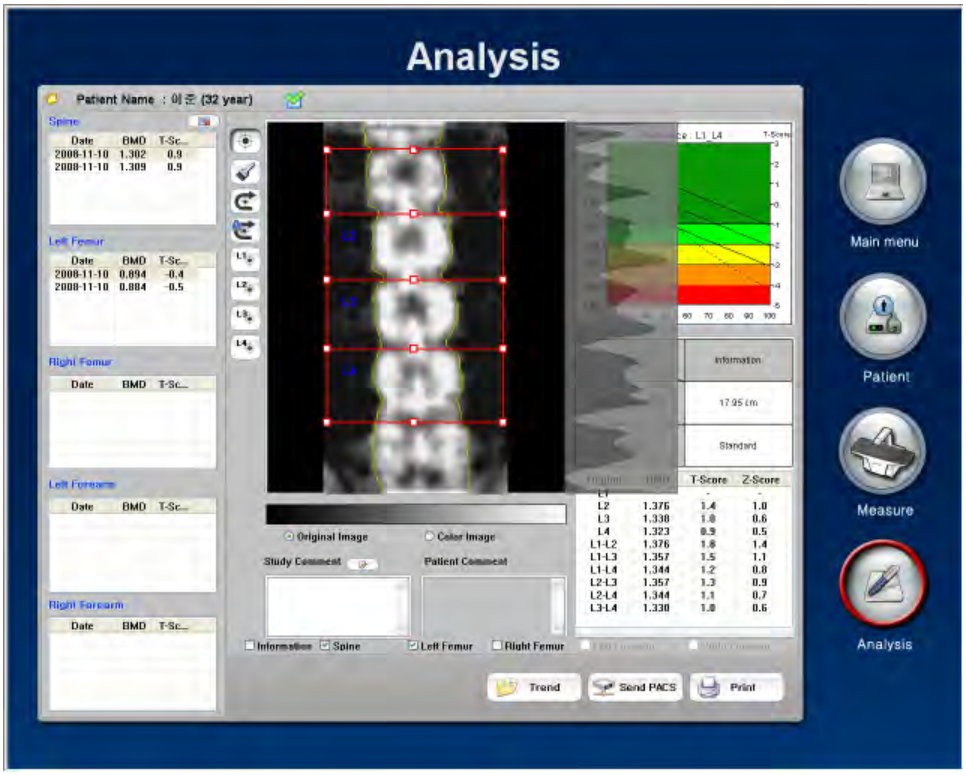
- Icons at the bottom of images are as follows.

1. It determines image colors. Black-and-white images or color images can be selected.
2. Comments about subject's selection image can be inserted.

13. Image Analysis (SPINE)

- It analyzes the subject's measured image of spine.

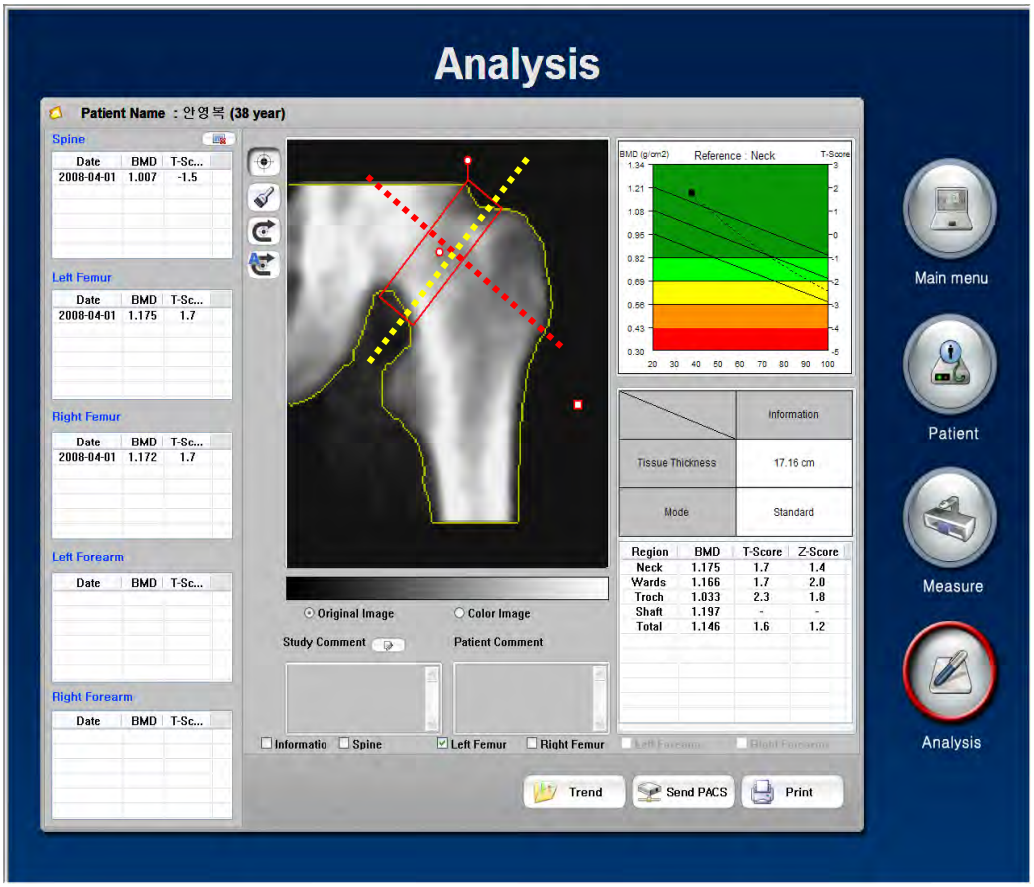
a. Click the subject's measured spine images in the list on the left of the images.
b. Press the "ROI set" button when images appear.
c. Press the "ROI set" button again when ROI is captured normally, as automatic ROI is set up.
d. When ROI has not been captured normally, capture the exact ROI by dragging 3 points in red line on images. ROI needs resetting for exact examination of subjects whose spine is bent or pressed.
   Middle point: It is used to adjust top and bottom line.
   Points on both sides :It is used to adjust the inclination of lines.
e. When it is difficult to adjust ROI with bare eyes, use the histogram on the right of the images. Histogram indicates image density in graph from above, in case of high density, the right of histogram is marked high, and marked low for low density.
f. Once clicking "ROI set" button, ROI is fixed and calculated value appears as measurement value.



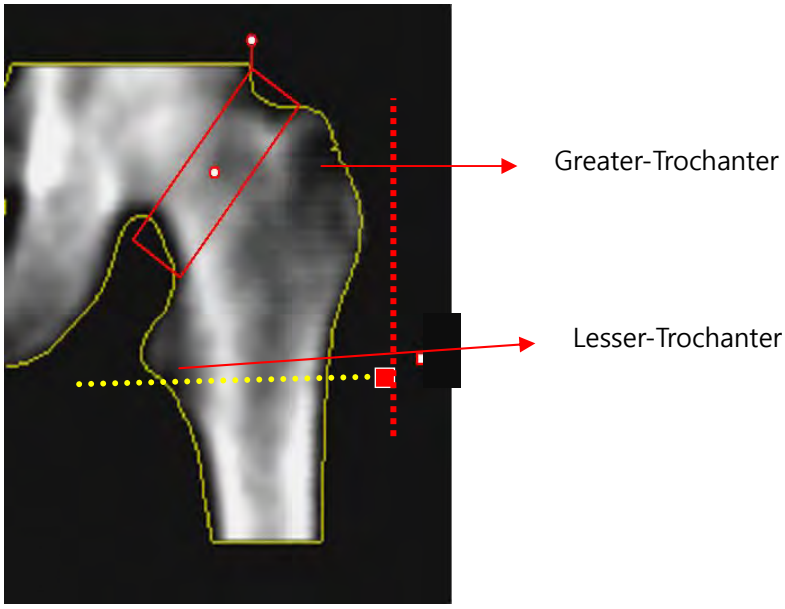
14. Image Analysis (Femur)

- It analyzes the subject's measured images of femur.
  Refer to 13.image analysis (spine) as the analysis methods are basically the same as those.

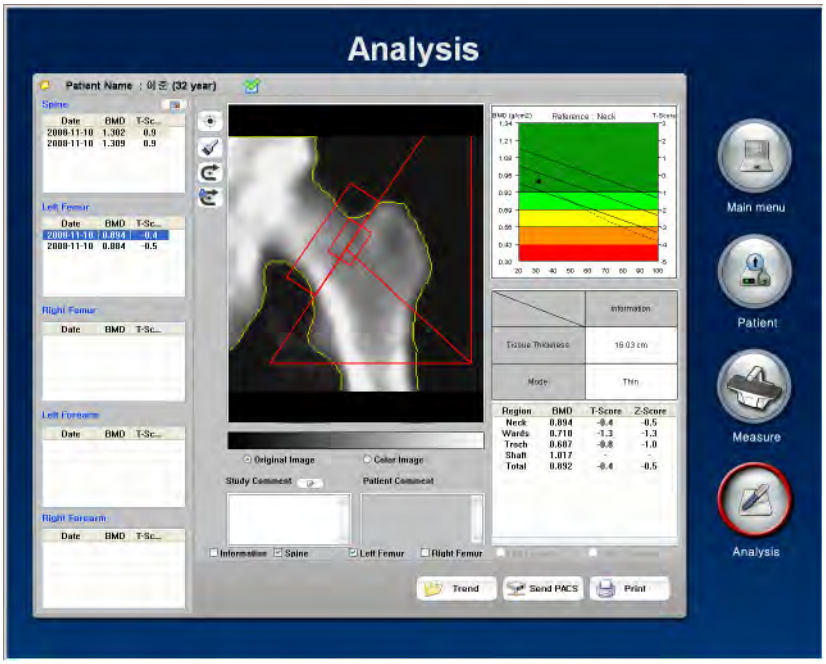
  a. If ROI of femur has not been captured automatically, practice the following. Press the "ROI set" button.
  b. Drag the red box to capture ROI of femur and place the pointer in the middle of the box in the "Neck".
  c. Have the inclinations of Neck and rectangle box be perpendicular by adjusting inclinations with pointer outside the square.



d. Place the pointer that can be dragged out of square on the same line with bottom-right of lessor-Trochanter, have the point placed on the position meeting perpendicular line from outside the greater-Trochanter.



e. When clicking "ROI set" button, ROI is fixed and a triangle region is created.



f. The results are shown.

15. Use of Brush

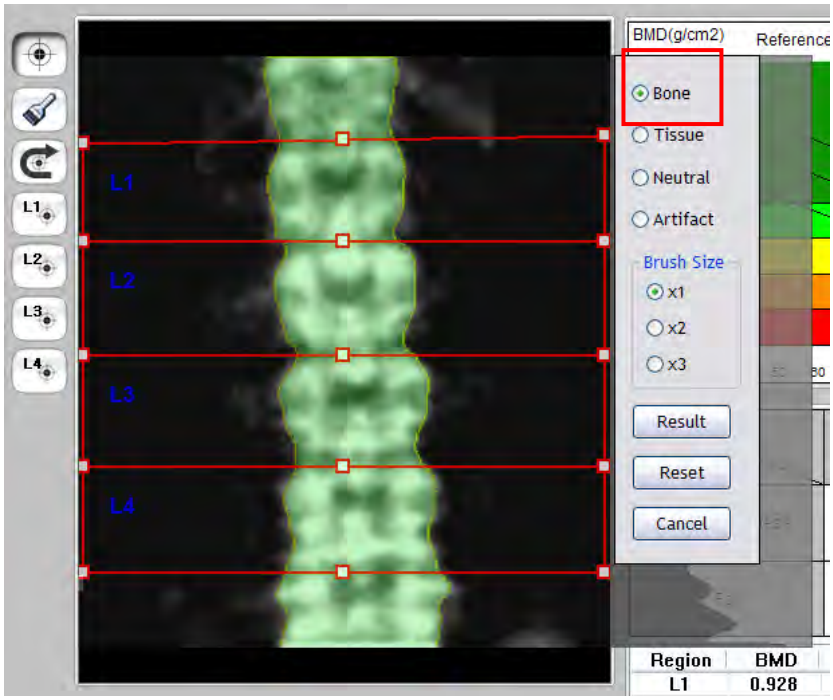
- Brush is used to eliminate factors affecting the measurement values of subject images or include removed parts on one's own into measurement values. It is possible to adjust the regions of bone, tissue, neutral, and artifact with appeared images.

a. Click a subject's images in the list.
b. Click the ROI set button when an image appears.
c. Click the "Brush".
d. Select the check box of function to be used among Bone, tissue, neutral, and artifact on the right menu.
e. Select the Brush size.
f. Click a certain area and paint it while rubbing with mouse clicked.
g. Click the "Result" button after setting regions.
h. Check the image if the painted regions are well reflected in the results.
i. Click the "Reset" button if the painting fails. It returns to original image of patients.
j. Click the "Cancel" button if you want to cancel the region setting during region setting.

When Brush function is applied to original images, BMD, T-score values are affected directly. Therefore, be sure to consider carefully when using Brush function.

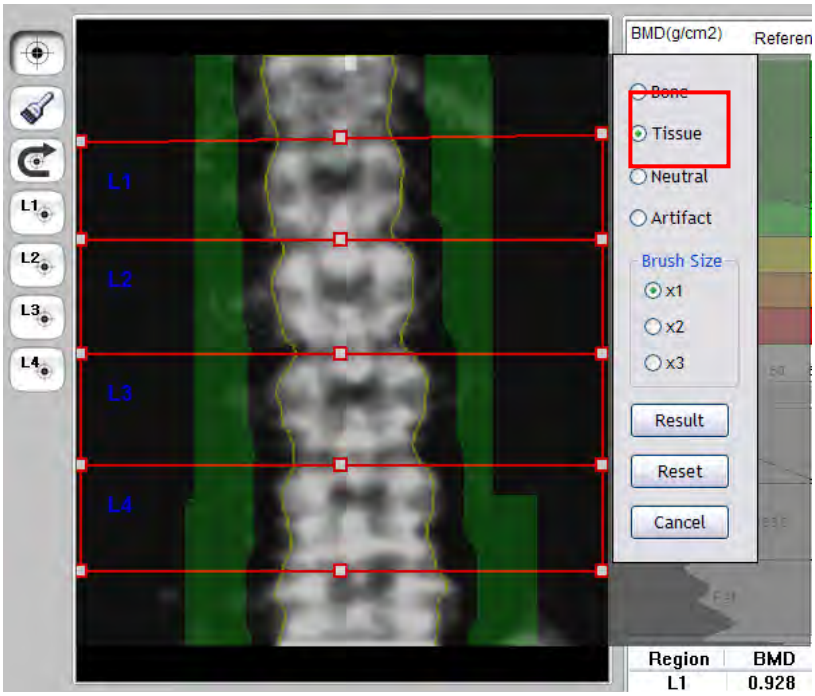
- Bone Region Labeling

  It is used when a bone to be calculated has not been captured in ROI regions.



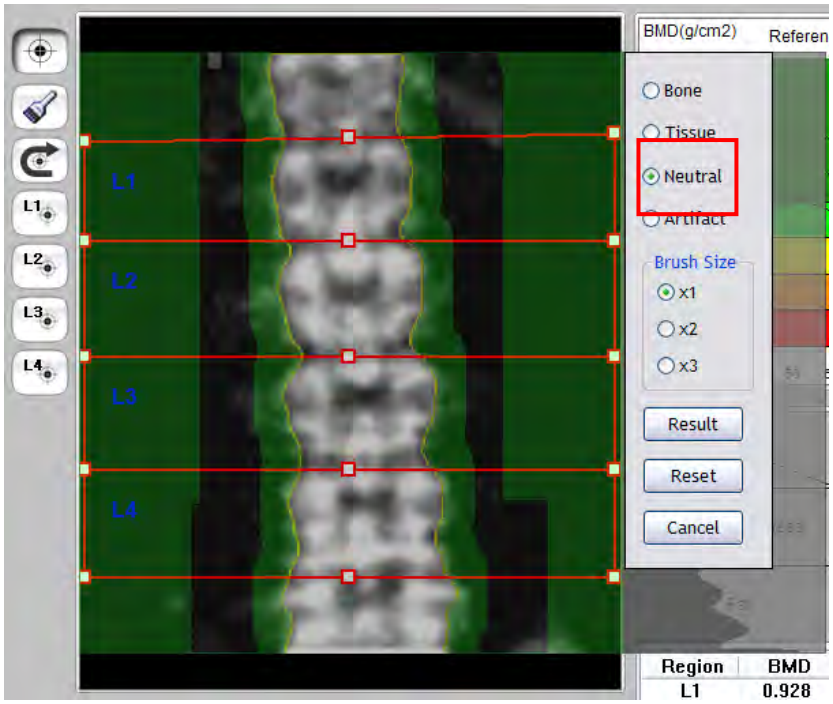
- Tissue Region Labeling

  It is used when setting tissues on both sides of bone.



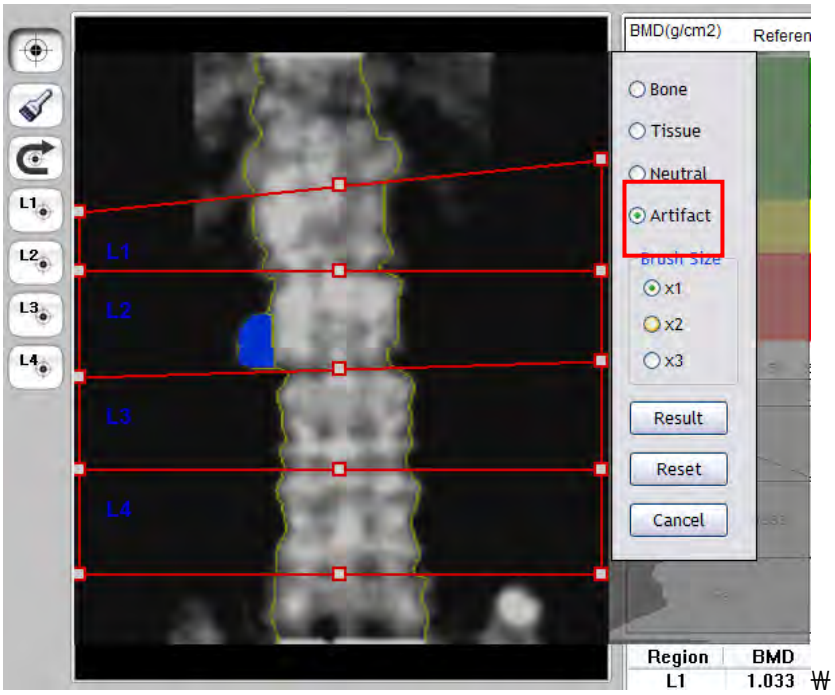
- Neutral Region Labeling

  It is used when setting the regions excluded from BMD calculation.



- Artifact Region Labeling

  It is used when removing foreign substances on images.

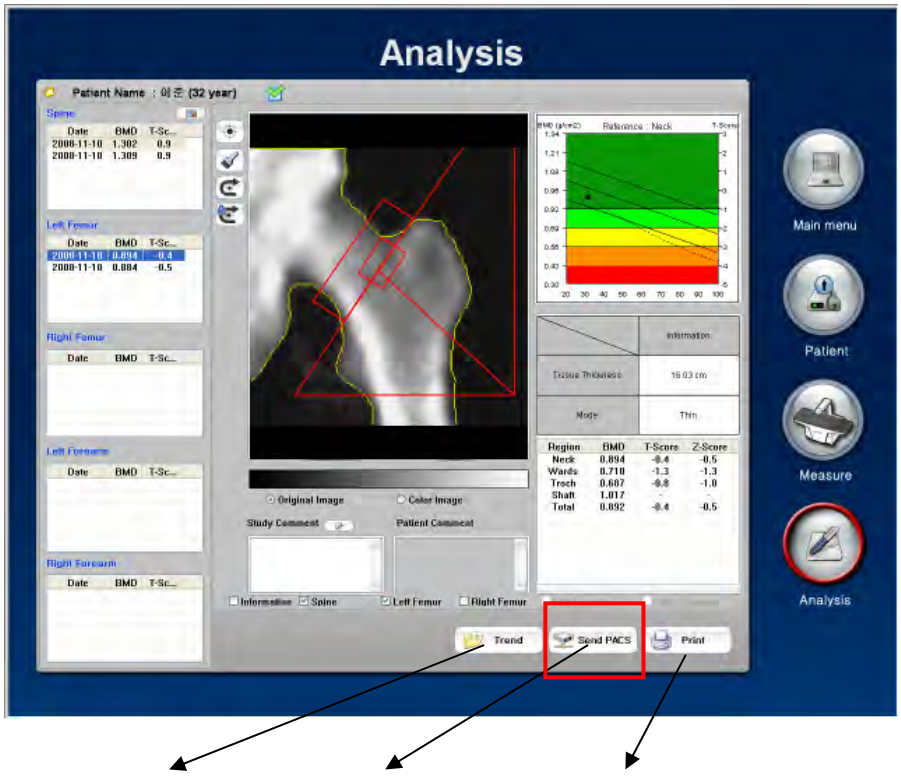


16. Print of Results and PACS Linkage

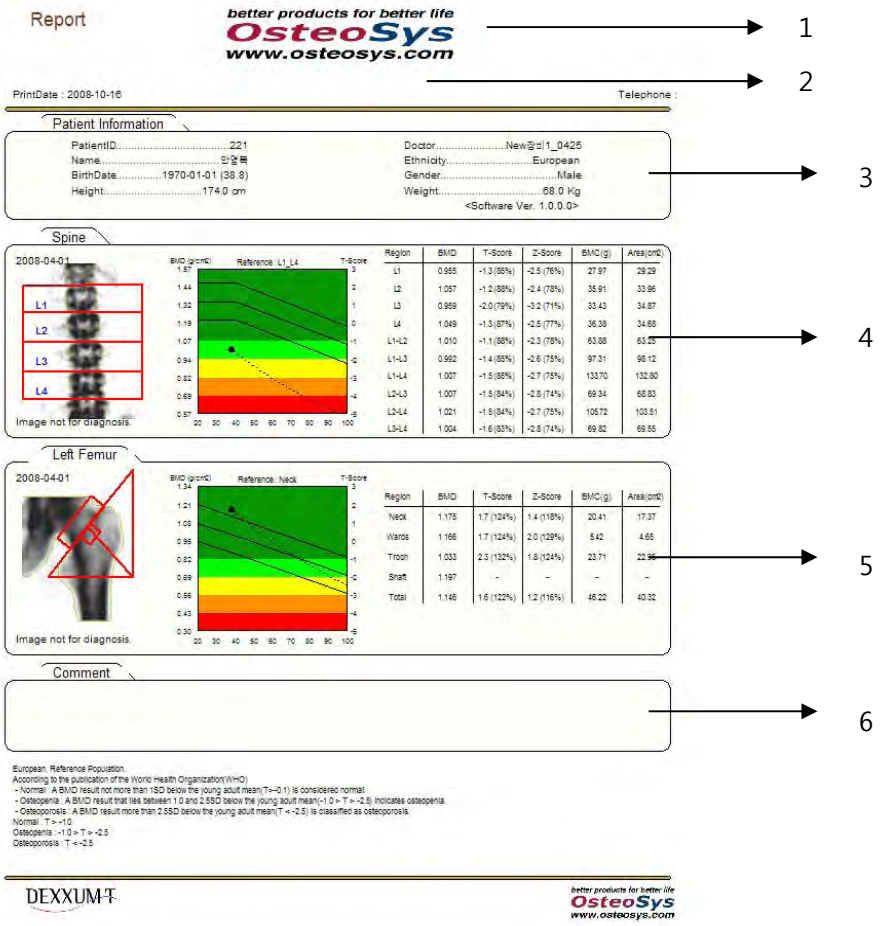
- Print out the acquired results.

a. Print out the information of spines and femurs by site through "Information Check" in analysis window after analyzing. Also, when clicking once the data in the list of subject measurement data, the data of list is selected, and when clicking the "Print" button, the selected data is printed.

b. It is possible to transmit subject's data easily using PACS if PACS linkage system is installed in the hospital.
Select the data in "Information check" and then click the "Send PACS" button.



Trend PACS linkage (Send PACS) Print


Report
better products for better life
OsteoSys
www.osteosys.com
1
2
PrintDate : 2008-10-16
Telephone :
Patient Information
PatientID.....221
Name.....한글특
BirthDate.....1970-01-01 (38.8)
Height.....174.0 cm
Doctor.....New정형1_0425
Ethnicity.....European
Gender.....Male
Weight.....68.0 Kg
<Software Ver. 1.0.0.0>
3
Spine
2008-04-01
L1
L2
L3
L4
Image not for diagnosis.
Region BMD T-Score Z-Score BMC(g) Area(cm2)
L1 0.955 -1.3 (85%) -2.5 (76%) 27.97 29.29
L2 1.057 -1.2 (88%) -2.4 (78%) 35.91 33.96
L3 0.959 -2.0 (79%) -3.2 (71%) 33.43 34.87
L4 1.049 -1.3 (87%) -2.5 (77%) 36.38 34.68
L1-L2 1.010 -1.1 (88%) -2.3 (78%) 63.66 63.25
L1-L3 0.992 -1.4 (85%) -2.6 (75%) 97.31 98.12
L1-L4 1.007 -1.5 (85%) -2.7 (75%) 133.70 132.80
L2-L3 1.007 -1.5 (84%) -2.8 (74%) 69.34 68.83
L2-L4 1.021 -1.5 (84%) -2.7 (75%) 105.72 103.51
L3-L4 1.004 -1.6 (83%) -2.8 (74%) 69.82 69.55
4
Left Femur
2008-04-01
Image not for diagnosis.
Region BMD T-Score Z-Score BMC(g) Area(cm2)
Neck 1.175 1.7 (124%) 1.4 (118%) 20.41 17.37
Wards 1.166 1.7 (124%) 2.0 (129%) 5.42 4.65
Troch 1.033 2.3 (132%) 1.8 (124%) 23.71 22.96
Shaft 1.197 - - - -
Total 1.146 1.6 (122%) 1.2 (116%) 45.22 40.32
5
Comment
6
European Reference Population
According to the publication of the World Health Organization(WHO)
- Normal : A BMD result not more than 1SD below the young adult mean(T>-0.1) is considered normal.
- Osteopenia : A BMD result that lies between 1.0 and 2.5SD below the young adult mean(-1.0 > T > -2.5) indicates osteopenia.
- Osteoporosis : A BMD result more than 2.5SD below the young adult mean(T < -2.5) is classified as osteoporosis.
Normal : T > -1.0
Osteopenia : -1.0 > T > -2.5
Osteoporosis : T < -2.5
DEXXUM T
better products for better life
OsteoSys
www.osteosys.com

1: hospital logo

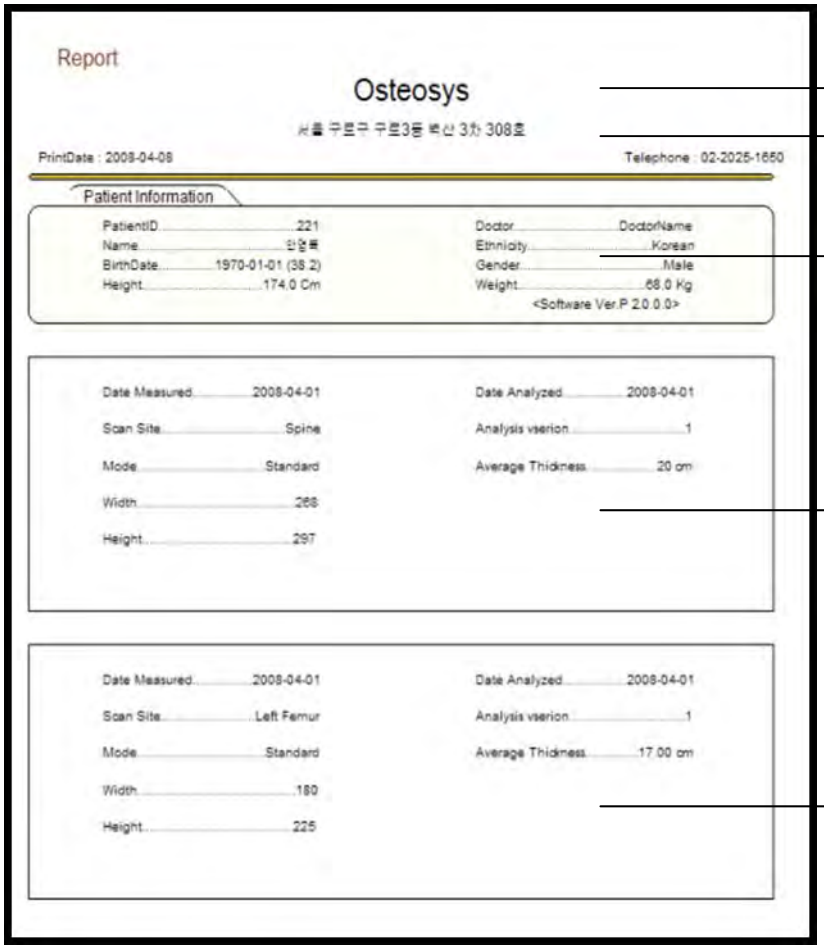
2: address and telephone numbers of hospital

3: subject information

4: results of multi-site No.1

5: results of multi-site No.2

6: comments

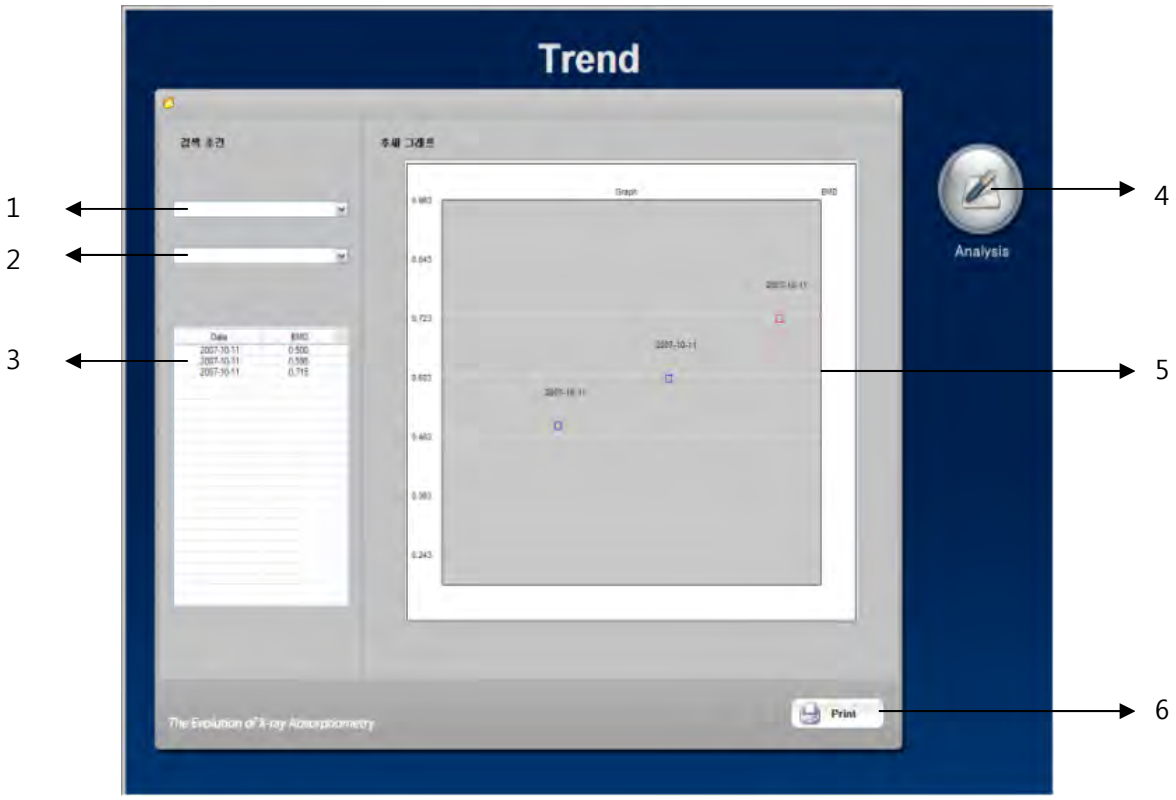


1: hospital name
2: hospital address
3: subject's information
4: data information of No. 1 site measurement
5: data information of No. 2 site measurement

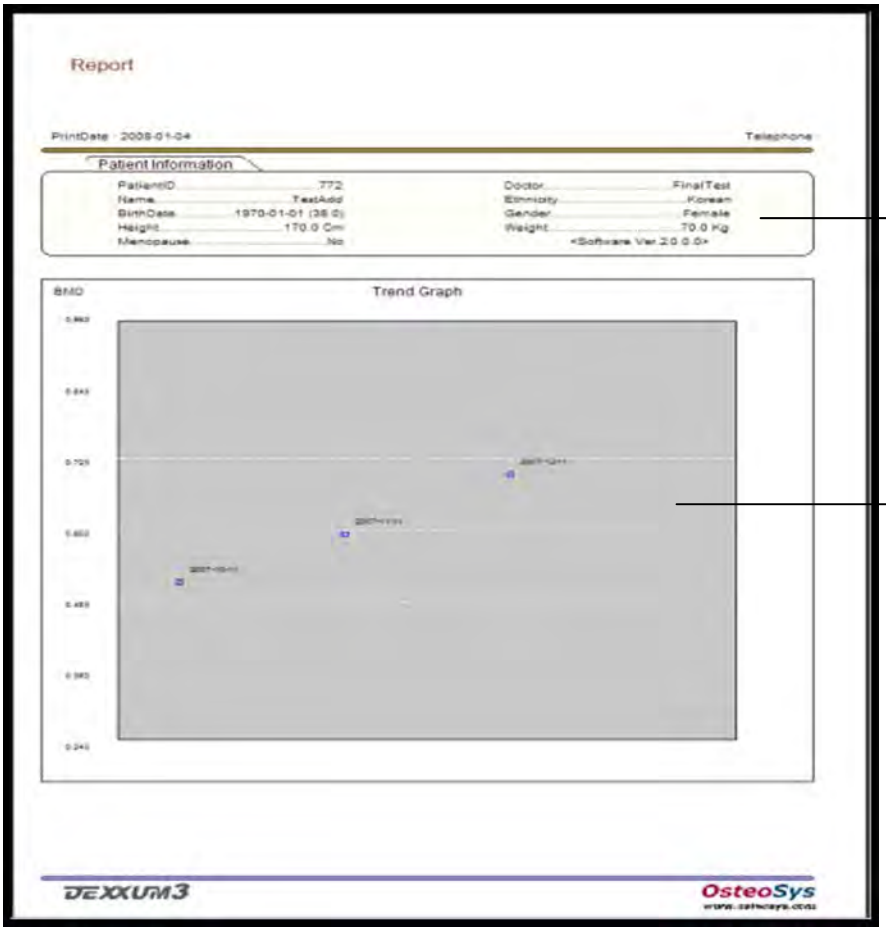
17. Print of Trend

- Trend shows the trend of subject's osteoporosis as a graph and BMD values. Values by ROI region of each site as well as total BMD values can be printed.

  a. Select the site of interest in the first window of "search condition".
  b. Select the region of interest in the second window of "search condition"
  c. BMD values are indicated after sorted by date, graph also indicates the data of measurement date as a diagram.



1: Selection of Site
2: Selection of ROI Region
3: Print of BMD values of selected regions by date
4: Go to analysis window
5: trend graph
6: trend print



1: subject information

2: trend graph

DEXXUM T Related Documents

1. Documents Related to Radiation of DEXXUM T 79
1) Aluminum Equivalent 79
2) Radiation Amount of DEXXUM T Leaked Outside 80
3) Patient Dose 81
2. Label 84
3. Detailed Specifications of DEXXUM T 89
4. List of Installation Items of DEXXUM T 91
5. Warranty 92
6. Remarks 93

1. Documents Related to Radiation of DEXXUM T

1) Aluminum Equivalent

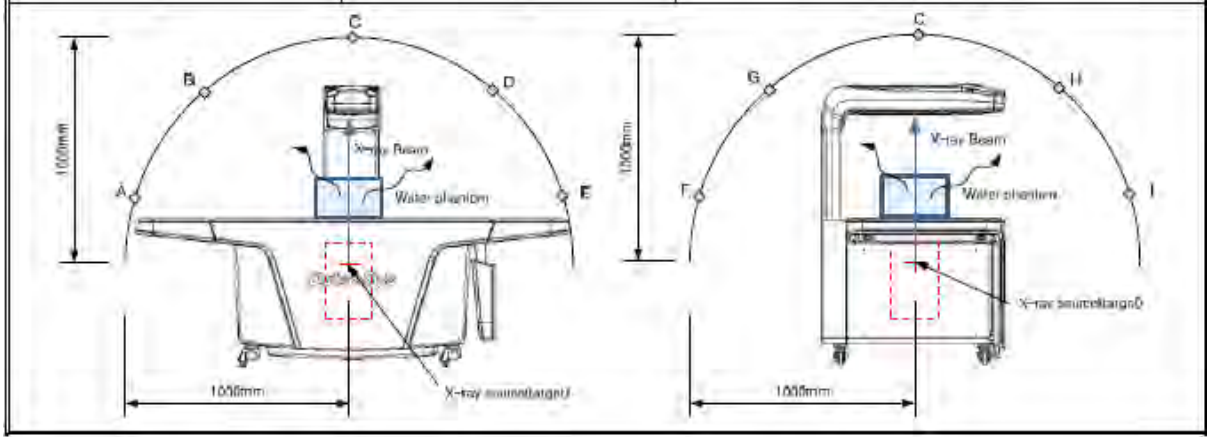
Aluminum Equivalent of DEXXUM T:

Samarium filter	2.0mmAL
X-ray tube inner filtration	0.8mmAL
Total Filtration Equivalence	**2.8mmAL**

2) Radiation Amount Leaked Outside

The amount of leaked radiation of DEXXUM T is as follows.

No	Position	Value of measured scatter radiation (uSv/hr)
1	A	0.862 uSv/hr
2	B	1.048 uSv/hr
3	C	1.012 uSv/hr
4	D	1.132 uSv/hr
5	E	0.958 uSv/hr
6	F	0.267 uSv/hr
7	G	0.209 uSv/hr
8	H	1.168 uSv/hr
9	I	1.156 uSv/hr

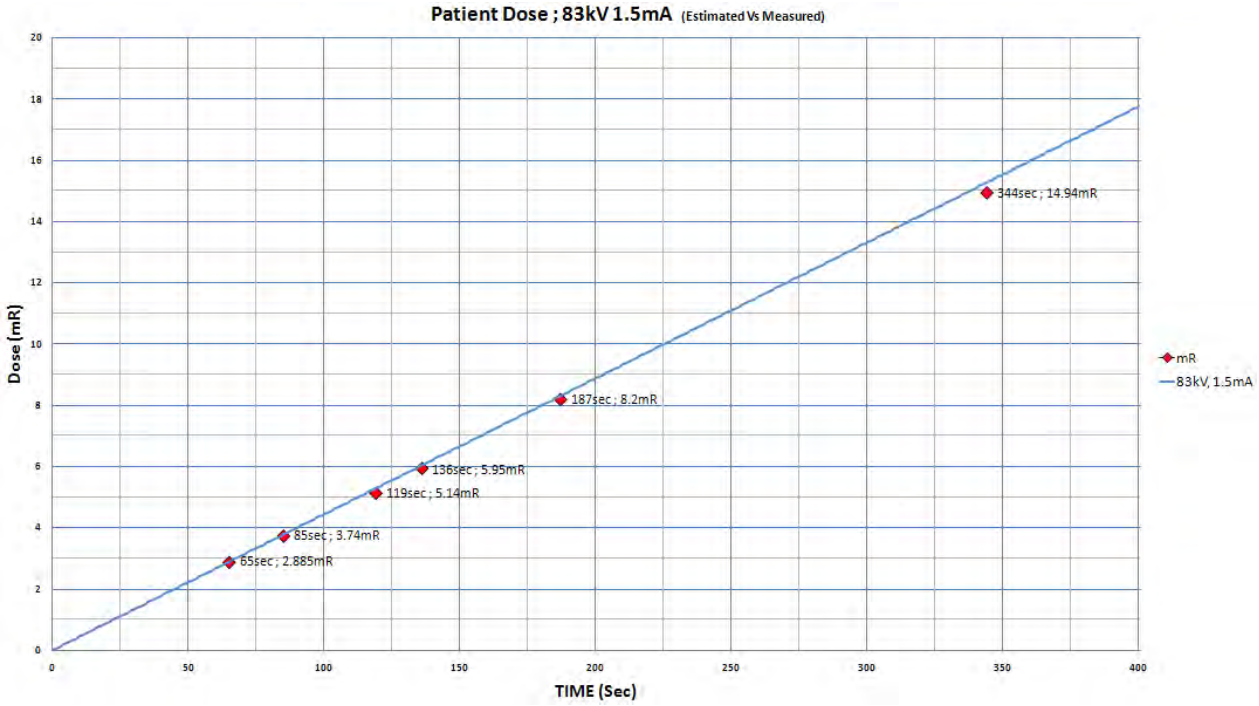


3) Patient Dose Amount Table(mR)

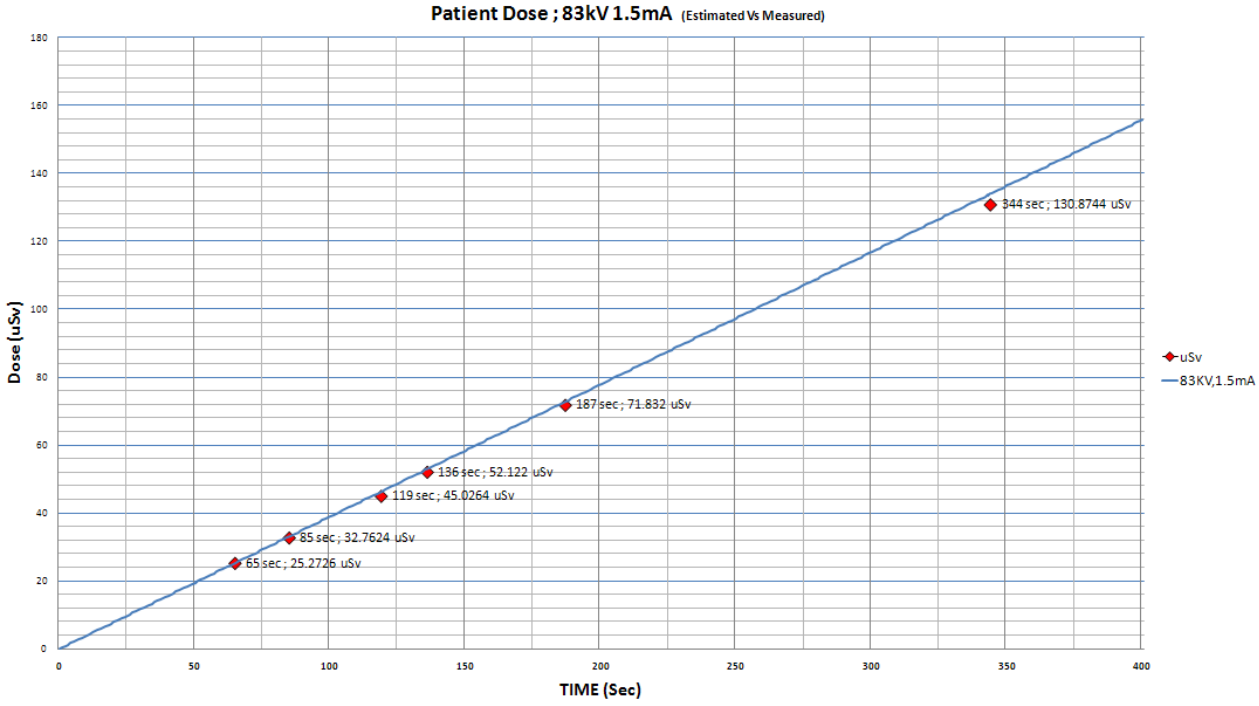
Measured Site	Scan speed	Scan Mode	Measured Time	tube current	tube voltage	mAs	Dose Ratio (mR)
Spine	Fast	Thin	85 sec	0.4 mA	83 kV	34	0.766
		Standard	85 sec	1.5 mA		127.5	3.74
		Thick	136 sec	1.5 mA		204	5.95
	Normal	Thin	187 sec	0.4 mA		74.8	1.675
		Standard	187 sec	1.5 mA		280.5	8.2
		Thick	344 sec	1.5 mA		516	14.94
Femur	Fast	Thin	65 sec	0.4 mA		26	0.589
		Standard	65 sec	1.5 mA		97.5	2.885
	Normal	Thin	119 sec	0.4 mA		47.6	1.066
		Standard	119 sec	1.5 mA		178.5	5.14
Site	Scan speed	Scan	Measured Time	tube current	tube voltage	mAs	Dose Ratio (uSv)
Spine	Fast	Thin	85 sec	0.4 mA	83 kV	34	6.71016
		Standard	85 sec	1.5 mA		127.5	32.7624
		Thick	136 sec	1.5 mA		204	52.122
	Normal	Thin	187 sec	0.4 mA		74.8	14.673
		Standard	187 sec	1.5 mA		280.5	71.832
		Thick	344 sec	1.5 mA		516	130.8744
Femur	Fast	Thin	65 sec	0.4 mA		26	5.15964
		Standard	65 sec	1.5 mA		97.5	25.2726
	Normal	Thin	119 sec	0.4 mA		47.6	9.33816
		Standard	119 sec	1.5 mA		178.5	45.0264

Patient Dose Amount in Normal Operation

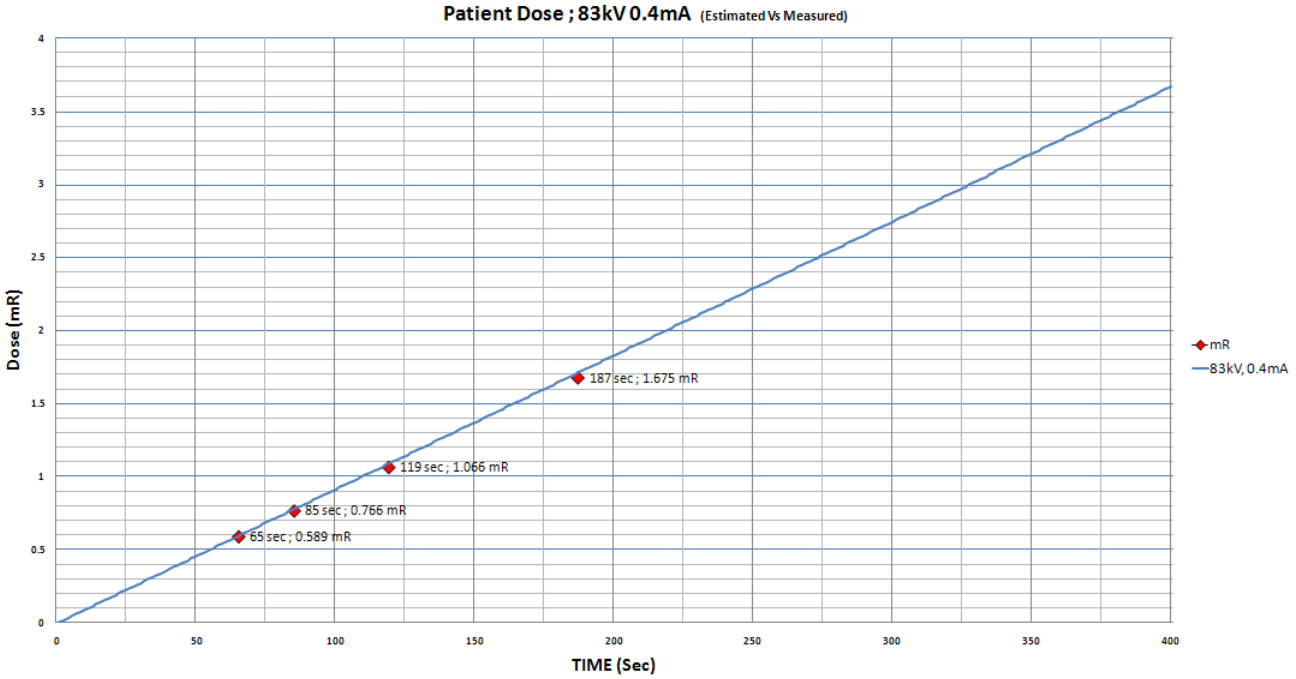
A. Patient Dose Amount Graph (83KV, 1.5mA Unit : mR)



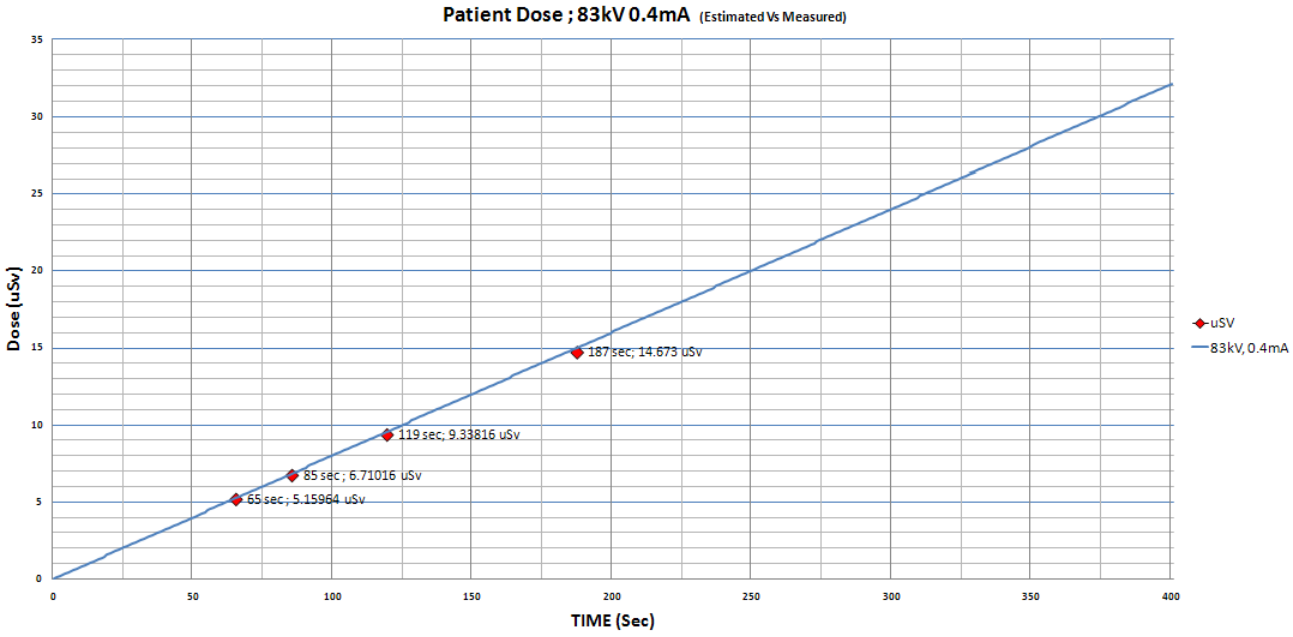
B. Patient Dose Amount Graph (83KV, 1.5mA Unit : uSv)


Patient Dose ; 83kV 1.5mA (Estimated Vs Measured)
Dose (uSv)
TIME (Sec)
65 sec ; 25.2726 uSv
85 sec ; 32.7624 uSv
119 sec ; 45.0264 uSv
136 sec ; 52.122 uSv
187 sec ; 71.832 uSv
344 sec ; 130.8744 uSv
uSv
83KV,1.5mA

C. Patient Dose Amount Graph (83KV, 0.4mA Unit : mR)

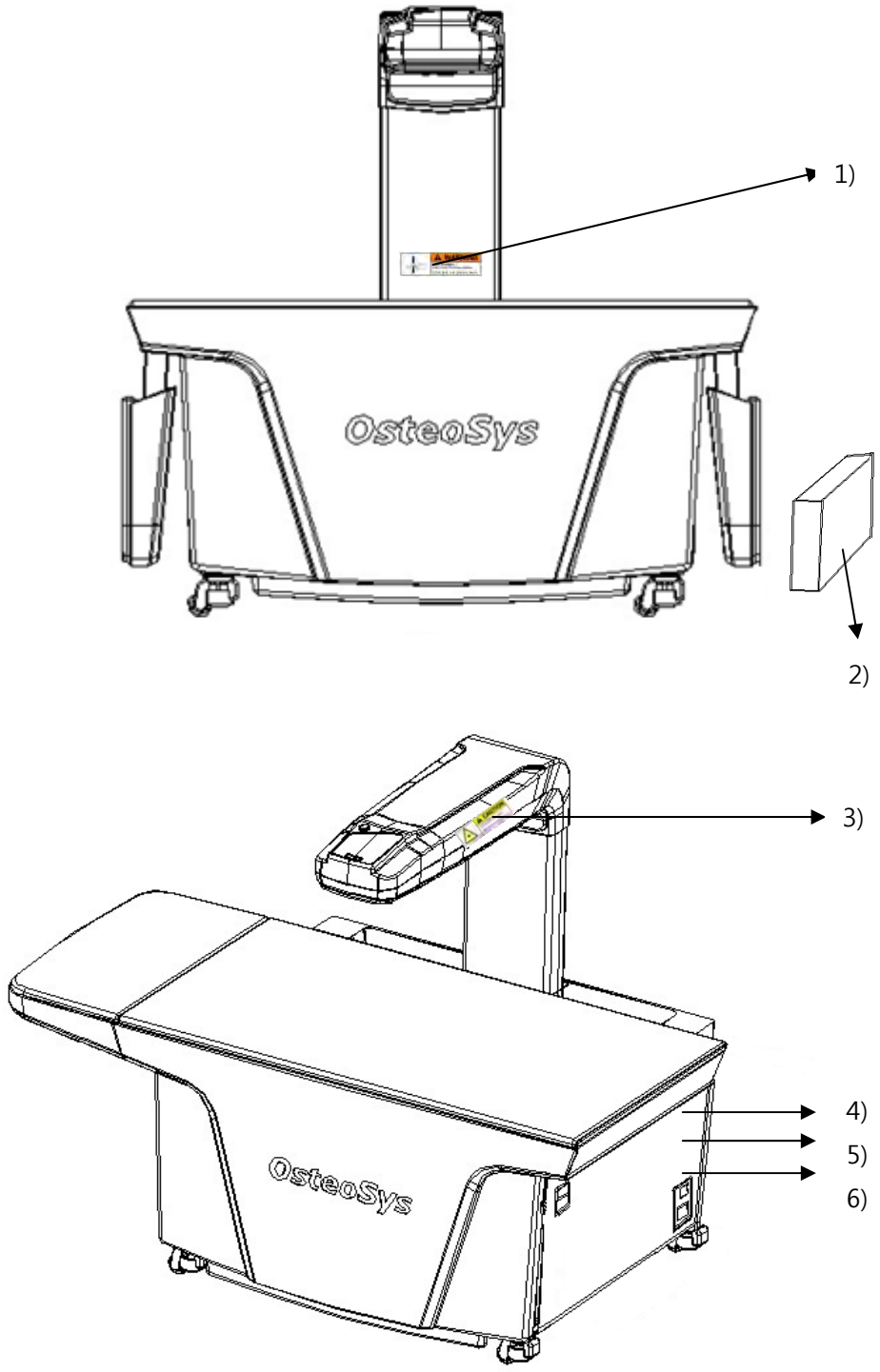


D. Patient Dose Amount Graph (83KV, 0.4mA Unit : uSv)



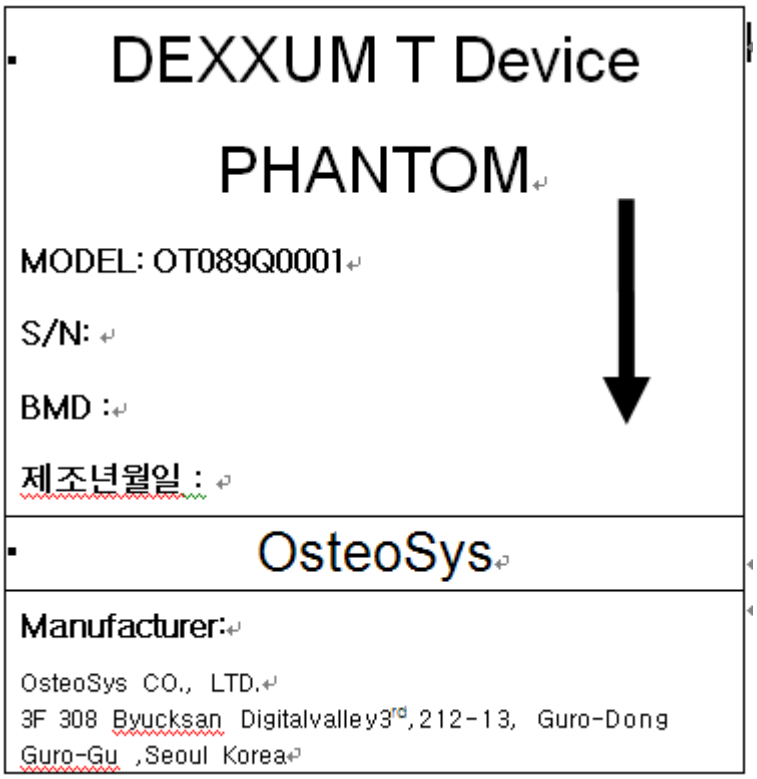
2. Label

- Label positions of equipment are as follows.



1) Warning label against pinched fingers.

2) Label for daily check phantom



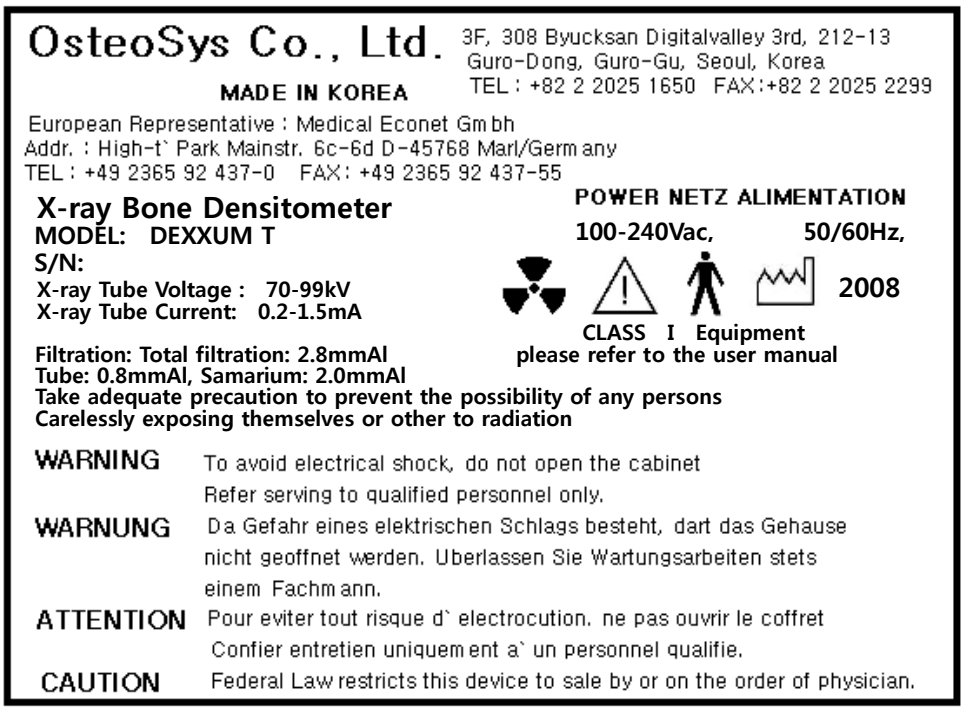
3) Warning label against laser pointer

4) Equipment label

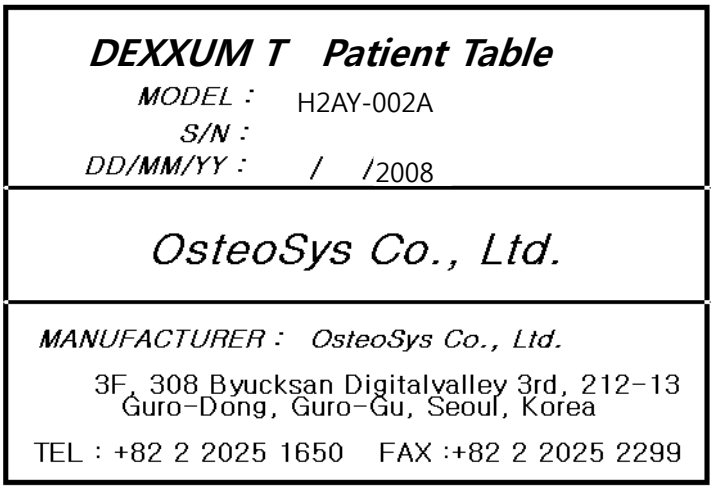
(Korean)

기재사항
(1) 제품명 : X선 골밀도 측정기
(2) 형명(모델명) : DEXXUM T
(3) 제조업자 : ㈜오스테오시스 서울시 구로구 구로동 212-13 벽산디지털벨리 3차 308,309,310
(4) 제조업허가번호 : 제 1125 호
(5) 사용목적 : 뼈또는 인접조직에 X선을 투과시켜 뼈의 밀도와 미네랄 함량을 측정하는 기구
(6) 제조번호 : 추후기재
(7) 제조년월일 : 추후기재
(8) 중량 :130.5Kg
(9) 포장단위: 1set
(10) 제품의 유효기간 (반영구적)
(11) 성능 및 사용방법 : 제품설명서 참고
(12) 사용상 주의사항 : 제품설명서 참고
(13) 정격전원의 상수(단상)
(14) 주파수 : 50/60Hz
(15) 표준전압 : 100-240Vac
(16) 소비전력 : 400VA
(17) X선관의 형식명 : DF-151SBR
(18) 초점의 크기 : 0.5 mm
(20) 고유여과 : Inherent Filtration 2.8mm Al
(21) 전격에 대한 보호형식 : 1급기기
(22) 전격에 대한 보호등급 : B형기기

(English)


OsteoSys Co., Ltd.
3F, 308 Byucksan Digitalvalley 3rd, 212-13
Guro-Dong, Guro-Gu, Seoul, Korea
TEL : +82 2 2025 1650 FAX:+82 2 2025 2299
MADE IN KOREA
European Representative : Medical Econet Gmbh
Addr. : High-t` Park Mainstr. 6c-6d D-45768 Marl/Germany
TEL : +49 2365 92 437-0 FAX: +49 2365 92 437-55
X-ray Bone Densitometer
MODEL: DEXXUM T
S/N:
X-ray Tube Voltage : 70-99kV
X-ray Tube Current: 0.2-1.5mA
POWER NETZ ALIMENTATION
100-240Vac, 50/60Hz,
2008
CLASS I Equipment
please refer to the user manual
Filtration: Total filtration: 2.8mmAl
Tube: 0.8mmAl, Samarium: 2.0mmAl
Take adequate precaution to prevent the possibility of any persons
Carelessly exposing themselves or other to radiation
WARNING To avoid electrical shock, do not open the cabinet
Refer serving to qualified personnel only.
WARNUNG Da Gefahr eines elektrischen Schlags besteht, dart das Gehause
nicht geoffnet werden. Uberlassen Sie Wartungsarbeiten stets
einem Fachmann.
ATTENTION Pour eviter tout risque d` electrocution, ne pas ouvrir le coffret
Confier entretien uniquement a` un personnel qualifie.
CAUTION Federal Law restricts this device to sale by or on the order of physician.

5) Label for subject table


DEXXUM T Patient Table
MODEL : H2AY-002A
S/N :
DD/MM/YY : / /2008
OsteoSys Co., Ltd.
MANUFACTURER : OsteoSys Co., Ltd.
3F, 308 Byucksan Digitalvalley 3rd, 212-13
Guro-Dong, Guro-Gu, Seoul, Korea
TEL : +82 2 2025 1650 FAX :+82 2 2025 2299

6) Label for X-ray generator

X-ray Generator

Model: EMB-0165, Manufacture: Ecotron Co., Ltd

Serial No.: , Mfg Date:
Line input Power: 100-240Vac, Single Phase: 50/60Hz
Max Output Power: 165W, Inherent Filtration: 2.0 mm Al
Rating: 70-99kV, 0.2-1.5mA, Continuous

X-ray TUBE HEAD

Model: DF-151SBR, Manufacture: TOSHIBA

Focal spot: Large: 1.5mm, Small: 0.5mm
Operating Tube Voltage: 40-110kV
Anode Heat Storage Capacity: 35.5 kJ
Target Angle: 16 degrees. Inherent Filtration: At least 0.8mm Al

3. Detailed Specifications of DEXXUM T

Contents	Descriptions	Remarks
Equipment		
Manufacturer	OsteoSys	
Model name	DEXXUM T	
Grade and type	1st grade B type instrument	
Product size	2083(W) x 1066(D) x 1230H)	
Weight	130.5Kg	
Input voltage and frequency	100VAC ~ 240VAC / 50Hz ~ 60Hz	
Power consumption	400VA	
Valid period	Semi-permanent	
X-ray generator		
Manufacturer	ECOTRON	
Address	11F, 1002 Hansin IT Tower 2nd, 60-18, Gasan-dong, Geumcheon-gu, Seoul, KOREA	
Model name	EMB-0165	
Maximum tube voltage	110KV	
Maximum tube current	1.5mA	
Power consumption	50W	
Capacity	165W	
Input voltage and frequency	110VAC/220VAC ± 10%	
Lowest Current Time product	1mAs (0.2mA, 5seconds)	
Aluminum equivalent	2.8mmAL (samarium + X-ray tube)	
X-ray tube		
Manufacturer	TOSHIBA	
Model name	DF-151SBR	
Maximum tube voltage	121KV	
Maximum tube current	3.1A	
Focal spot size	0.5mm	
Cathode	Tungsten filament	
Anode	14 fixed-type tungsten target	
Anode input	248VDC / 1.6A	

Detector		
Manufacturer	EV products	
Model name	EV-381	
Image sensor	CdZnTe	
Image area	11mm diameter	

	Descriptions	Remarks
Daily Check Phantom		
Manufacturer	OsteoSys	
Model name	D3MC-500A	
Size	170(W) x 50(D) x 150(H)	
Performances		
Image size (spine)	160mm X 192mm	
Image size (Femur)	120mm X 180mm	
Reproducibility	± 1.5% CV	
Accuracy	± 1.5% CV	
X-ray radiation time	1min 25sec – 3min 50sec	
Radiation dose	below 10m Rem per examination (5m distance)	
Residual radiation	Below 1 mRem (5m distance)	
Use environment		
Operating temperature	above 15℃ below 40℃	
Suitable humidity	20% ~ 80%	
Suitable air pressure	700 ~ 1060 Hpa	
Impact	Within 2G in 6 X 10^{-3}sec	
Storage temperature range	Above -5℃ below 50℃	
Storage humidity range	0% ~ 90%	

4. Installation Items List of DEXXUM T

No.	Product	Qty'	Model	Vendor	CHECK
1	Main frame of Equipment	e	DEXXUM T	Osteosys	
2	Computer	1	Minimum requirements: P4 Pentium processor 512MB Win XP 1GB hard drive capacity (excluding DB)	Samsung	
3	Monitor	1	17″ LCD Monitor (above 1280 X 1024)	Samsung	
4	Printer	1	Color Printer	Samsung	
5	Daily check phantom	1	D3MC-500A	Osteosys	
6	Protective wall	1	G2AY-003A	Osteosys	
7	Power cable	1	220VAC 10A	Osteosys	
8	Communication cable	1	5mm cross cable	-	
9	A4 paper	1	A4	-	
10	Measurement assistant	1	G3MJ-002A	Osteosys	
11	Test report	1	-	Osteosys	
12	User manual	1	-	Osteosys	
13	Installation confirmation	1	-	Osteosys	

Warranty

Thank you very much for using OsteoSys' bone densitometer.
We notify that OsteoSys' equipment has been developed and manufactured conforming to the law related to medical equipment.
OsteoSys will provide a repair of the product at OsteoSys' own expense for any such failure and defects arising within a year of the original date of purchase or installation, provided that such a defect which result from normal transportation and use and cannot be otherwise repaired.

- Repairs performed by OsteoSys are subject to charge to the purchaser at established service fee, only in the following cases, and at normal repair rates when received service after the warranty period.
  1. When product failures occur after the warranty period
  2. Failures caused by natural calamities such as fire, earthquake, a stroke of lightning, and flood
  3. When product failures occur due to inadequate movement after installation and careless use
  4. When product failures occur due to services by third parties other than OsteoSys, appointed service agencies, or OsteoSys' designated engineers
  5. When product failures occur due to disassembly and assembly of products on your own

- If you require assistance, please fill out the following form and send a fax to +82-2-2025-2299 or contact the nearby agencies, stores, or head office by calling the service line of +82-2-2025-1650. Please fill out the following and send it for prompt after sales service or tell us abnormal symptoms of equipment.
  Model name / serial No. : DEXXUM T /
  Name of Installed hospital / City / Country :
  Contact of Installed hospital :
  Install date :
  Abnormal symptoms :

OsteoSys Co., Ltd.

Remarks: